

PATENT ABSTRACTS OF JAPAN

(11)Publication number : 11-073725

(43)Date of publication of application : 16.03.1999

(51)Int.Cl. G11B 20/10

H04B 1/69

H04N 5/91

H04N 7/08

H04N 7/081

H04N 7/167

// G09C 1/00

(21)Application number : 09-234693 (71)Applicant : SONY CORP

(22)Date of filing : 29.08.1997 (72)Inventor : IKEDA NOZOMI
OGINO AKIRA

(54) INFORMATION SIGNAL RECORDING/REPRODUCING SYSTEM,
INFORMATION RECORDING DEVICE, INFORMATION SIGNAL REPRODUCING
DEVICE AND INFORMATION SIGNAL RECORDING/ REPRODUCING METHOD

(57)Abstract:

PROBLEM TO BE SOLVED: To make it possible to limit the duplication of information signals only to that for personal use.

SOLUTION: When recording digital video signals inputted through an input terminal 11 on a disk 100, the peculiar-to-medium information (serial number of Table Of

Contents) of a disk 100 read from the disk 100 by the peculiar-to-medium information reading section 17 is applied with spectrum diffusion in an SS added information generating section 14 to record the digital video signals 82 which are superimposed with the peculiar to medium information applied with spectrum diffusion in the SS added information superimposing section 15 on the recording medium 100. At the time of reproduction, reproduction is made to be possible only when the peculiar-to-medium information superimposed on the video signals recorded on the recording medium 100 is matched with the peculiar-to-medium information of the recording medium recorded with the video signals.

LEGAL STATUS [Date of request for examination] 27.04.2004

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

*** NOTICES ***

**JPO and NCIP are not responsible for any
damages caused by the use of this translation.**

1.This document has been translated by computer. So the translation may not reflect the original precisely.

2.**** shows the word which can not be translated.

3.In the drawings, any words are not translated.

CLAIMS

[Claim(s)]

[Claim 1] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, Or the recording device section which records an information signal on said record medium, using the record medium currently beforehand recorded on the part which accompanies a record medium, It is the information signal record regeneration system which consists of the regenerative-apparatus section which reproduces the information signal recorded on said record medium. Said recording device section from said record medium Or the medium related information read-out means by the side of the record which reads said medium related information from the part which accompanies said record medium, An information addition means to add said medium related information read by the medium related information read-out means by the side of said record to said information signal, It has a record means to record said information signal to which said medium related information was added by said information addition means on said record medium. Said regenerative-apparatus section from said record medium Or the medium related information read-out means by the side of the playback which reads said medium related information from the part which accompanies said record medium, The information signal read-out means which reads an information signal from said record medium, and a detection means to detect said medium related information added to said information signal from said information signal read-out means, Whether said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are in agreement with a distinction means to distinguish, and said distinction means An information signal record regeneration system equipped with the playback control means controlled to reproduce said information signal only when said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are in agreement.

[Claim 2] Said recording device section is equipped with the diffusion means which carries out spectrum diffusion of said medium related information from the medium related information read-out means by the side of said record. Said information addition means of said recording device section It is what superimposes said medium related information by which spectrum diffusion was carried out with said diffusion means on said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 1 characterized by being what takes out said medium related information on which spectrum diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons.

[Claim 3] Said recording device section is equipped with the signal level conversion means which makes said medium related information from the medium related information read-out means by the side of said record the signal of minute level. Said information addition means It is what adds said medium related information made into the signal of minute level by said signal level conversion means to said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 1 characterized by being what takes out said medium related information added to said information signal as a signal of minute level.

[Claim 4] Said recording device section is equipped with an encryption means to encipher said medium related information from the medium related information read-out means by the side of said record. Said information addition means of said recording device section It is what adds said medium related information enciphered by said encryption means to said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 1 characterized by being what takes out said medium related information added to said information signal by extracting and decrypting said medium related information which is enciphered by the information signal and added to it.

[Claim 5] When it is what shows that said medium related information from the medium related information read-out means by the side of said playback and said medium related information of the distinction result of said distinction means from said detection means do not correspond as for said regenerative-apparatus section Claim 1 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce, claim 2, an information signal record regeneration system according to

claim 3 or 4.

[Claim 6] Said regenerative-apparatus section is claim 1 characterized by having a notice means to notify that an information signal is not reproduced when the distinction result of said distinction means is what shows that said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are not in agreement, claim 2, claim 3, and an information signal record regeneration system according to claim 4 or 5.

[Claim 7] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, Or the recording device section which records an information signal on said record medium using the record medium currently beforehand recorded on the part which accompanies a record medium, It is the information signal record regeneration system which consists of the regenerative-apparatus section which reproduces the information signal recorded on said record medium. Said recording device section from said record medium Or the medium related information read-out means by the side of the record which reads said medium related information from the part which accompanies said record medium, An additional information generation means to generate additional information based on said medium related information from the medium related information read-out means by the side of said record, An information addition means to add said additional information generated by said additional information generation means to said information signal, It has a record means to record said information signal to which said additional information was added by said information addition means on said record medium. Said regenerative-apparatus section from said record medium Or the medium related information read-out means by the side of the playback which reads said medium related information from the part which accompanies said record medium, It is based on said medium related information read by the information signal read-out means which reads an information signal from said record medium, and the medium related information read-out means by the side of said playback. With an additional information detection means to detect said additional information added to said information signal, and said additional information detection means An information signal record regeneration system equipped with the playback control means controlled to reproduce said information signal only when said additional information added to said information signal is detected.

[Claim 8] Said additional information generation means by the side of said record of

said recording device section It is what generates said additional information by enciphering by using said medium related information from the medium related information read-out means by the side of said record as a cryptographic key. Said additional information detection means of said regenerative-apparatus section by decrypting by using said medium related information from the medium related information read-out section by the side of said playback as a decryption key The information signal record regeneration system according to claim 7 characterized by being what detects said additional information added to said information signal from said information signal read-out means.

[Claim 9] Said regenerative-apparatus section is an information signal record regeneration system according to claim 7 or 8 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when said additional information detection means is not able to detect said additional information from said information signal.

[Claim 10] Said regenerative-apparatus section is claim 7 characterized by having a notice means to notify that said information signal is not reproduced when said additional information detection means is not able to detect said additional information from said information signal, and an information signal record regeneration system according to claim 8 or 9.

[Claim 11] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, It is the information signal recording device which records an information signal on the record medium currently beforehand recorded on the part which accompanies a record medium. Or said record medium, Or the medium related information read-out means which reads said medium related information from the part which accompanies said record medium, The information signal recording device characterized by having an information addition means to add said medium related information read by said medium related information read-out means to said information signal, and a record means to record said information signal to which said medium related information was added by said information addition means on said record medium.

[Claim 12] It is the information signal recording device according to claim 11 which is equipped with the diffusion means which carries out spectrum diffusion of said medium related information from said medium related information read-out means, and is characterized by said information addition means being what superimposes said medium related information by which spectrum diffusion was carried out with said

diffusion means on said information signal to record.

[Claim 13] It is the information signal recording device according to claim 11 which is equipped with the signal level conversion means which makes said medium related information from said medium related information read-out means the signal of minute level, and is characterized by said information addition means being what adds said medium related information made into the signal of minute level by said signal level conversion means to said information signal to record.

[Claim 14] It is the information signal recording device according to claim 11 which is equipped with an encryption means to encipher said medium related information from said medium related information read-out means, and is characterized by said information addition means being what adds said medium related information enciphered by said encryption means to said information signal to record.

[Claim 15] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, It is the information signal recording device which records an information signal on the record medium currently beforehand recorded on the part which accompanies a record medium. Or said record medium, Or the medium related information read-out means which reads said medium related information from the part which accompanies said record medium, An additional information generation means to generate additional information based on said medium related information from said medium related information read-out means, The information signal recording device characterized by having an information addition means to add said additional information generated by said additional information generation means to said information signal, and a record means to record said information signal to which said additional information was added by said information addition means on said record medium.

[Claim 16] Said additional information generation means is an information signal recording device according to claim 15 characterized by being what generates said additional information by enciphering by using said medium related information from said medium related information read-out means as a cryptographic key.

[Claim 17] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, It is the regenerative apparatus of the information signal with which said medium related information was added currently recorded on the record medium currently beforehand recorded on the part which accompanies a record medium. Or from said record medium Or the medium related information read-out means which reads said medium related information from the part which accompanies said record medium, The

information signal read-out means which reads an information signal from said record medium, and a detection means to detect said medium related information added to said information signal from said information signal read-out means, Whether said medium related information from said medium related information read-out means and said medium related information from said detection means are in agreement with a distinction means to distinguish, and said distinction means An information signal regenerative apparatus equipped with the playback control means controlled to reproduce said information signal only when said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are in agreement.

[Claim 18] It is the information signal regenerative apparatus according to claim 17 which spectrum diffusion is carried out, is superimposed on the medium related information added to said information signal by said information signal, and is characterized by said detection means being what takes out said medium related information on which spectrum diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons.

[Claim 19] It is the information signal regenerative apparatus according to claim 17 which the medium related information added to said information signal is added as a signal of minute level, and is characterized by said detection means being what takes out said medium related information added to said information signal as a signal of minute level.

[Claim 20] When it is enciphered, the additional information added to said information signal is added to said information signal and said detection means extracts and decrypts said medium related information which is enciphered by the information signal and added to it, it is the information signal regenerative apparatus according to claim 17 characterized by being what takes out said medium related information added to said information signal.

[Claim 21] Claim 17 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when the distinction result of said distinction means is what shows that said medium related information from said medium related information read-out means and said medium related information from said detection means are not in agreement, claim 18, an information signal regenerative apparatus according to claim 19 or 20.

[Claim 22] Claim 17 characterized by having a notice means to notify that an information signal is not reproduced when the distinction result of said distinction

means is what shows that said medium related information from said medium related information read-out means and said medium related information from said detection means are not in agreement, claim 18, claim 19, an information signal regenerative apparatus according to claim 20 or 21.

[Claim 23] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, Or are recorded on the record medium currently beforehand recorded on the part which accompanies a record medium. It is the regenerative apparatus of the information signal with which the additional information generated based on said medium related information was added. From said record medium Or the medium related information read-out means by the side of the playback which reads said medium related information from the part which accompanies said record medium, It is based on said medium related information read by the information signal read-out means which reads an information signal from said record medium, and the medium related information read-out means by the side of said playback. With an additional information detection means to detect said additional information added to said information signal, and said additional information detection means The information signal regenerative apparatus characterized by having the playback control means controlled to reproduce said information signal only when said additional information added to said information signal is detected.

[Claim 24] In said information signal currently recorded on said record medium The additional information which was enciphered as a cryptographic key and generated in said medium related information at the time of record is added. Said additional information detection means The information signal regenerative apparatus according to claim 23 characterized by being what detects said additional information added to said information signal from said information signal read-out means by decrypting by using said medium related information from said medium related information read-out section as a decryption key.

[Claim 25] The information signal regenerative apparatus according to claim 23 or 24 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when said additional information detection means is not able to detect said additional information from said information signal.

[Claim 26] Claim 23 characterized by having a notice means to notify that said information signal is not reproduced when said additional information detection means is not able to detect said additional information from said information signal, an

information signal regenerative apparatus according to claim 24 or 25.

[Claim 27] The field where the medium related information which is the information about a record medium is separate from the information signal on a record medium, Or the record medium currently beforehand recorded on the part which accompanies a record medium is used. It is the record playback approach of the information signal which reproduces the information signal currently recorded on the record to said record medium of an information signal, and said record medium. If it is when recording said information signal on said record medium, from said record medium Or the medium related information read-out process by the side of the record which reads said medium related information from the part which accompanies said record medium, The information addition process which adds said read medium related information to said information signal, If it is when reproducing said information signal which is equipped with the record process which records said information signal with which said medium related information was added on said record medium, and is recorded on said record medium The medium related information read-out process by the side of the playback which reads said medium related information from said record medium or the part which accompanies said record medium, The information signal read-out process which reads an information signal from said record medium, and the detection process which detects said medium related information added to said information signal from said information signal read-out process, Said medium related information from the medium related information read-out process by the side of said playback, The distinction process which distinguishes whether said medium related information from said detection process is in agreement, The information signal record playback approach characterized by having the playback process which reproduces said information signal only when said medium related information from the medium related information read-out process by the side of said playback and said medium related information from said detection process are in agreement.

[Claim 28] If it is when recording said information signal on said record medium Have the diffusion process which carries out spectrum diffusion of said medium related information read in the medium related information read-out process by the side of said record, and it sets at said information addition process. Superimpose said medium related information in which spectrum diffusion was carried out by said diffusion process on said information signal to record, and if it is when reproducing said information signal currently recorded on said record medium, it sets at said detection process. The information signal record playback approach according to claim 27 characterized by taking out said medium related information on which spectrum

diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons.

[Claim 29] If it is when recording said information signal on said record medium Have the signal level conversion process that minute level carries out the signal of said medium related information read in the medium related information read-out process by the side of said record, and it sets at said information addition process. Add said medium related information made the signal of minute level by said signal level conversion process to said information signal to record, and if it is when reproducing said information signal currently recorded on said record medium, it sets at said detection process. The information signal record playback approach according to claim 27 characterized by being what takes out said medium related information added to said information signal as a signal of minute level.

[Claim 30] If it is when recording said information signal on said record medium Have the encryption process which enciphers said medium related information from the medium related information read-out process at the time of said record, and it sets at said information addition process. If it is when reproducing said information signal which adds said medium related information enciphered by said encryption means to said information signal to record, and is recorded on said record medium The information signal record playback approach according to claim 27 characterized by taking out said medium related information added to said information signal by extracting and decrypting said medium related information which is enciphered by the information signal and added to it in said detection process means.

[Claim 31] When the distinction result of said distinction process is what shows that said medium related information from the medium related information read-out process by the side of said playback and said medium related information from said detection process are not in agreement Claim 27 characterized by having the information signal elimination process which eliminates said information signal currently recorded on said record medium which it is going to reproduce, claim 28, the information signal record playback approach according to claim 29 or 30.

[Claim 32] Claim 27 characterized by having the notice process which notifies that said information signal is not reproduced when the distinction result of said distinction process is what shows that the medium related information from the medium related information read-out process by the side of said playback and the medium related information from said detection process are not in agreement, claim 28, claim 29, the information signal record playback approach according to claim 30 or 31.

[Claim 33] The field where the medium related information which is the information

about a record medium is separate from the information signal on a record medium, Or the record medium currently beforehand recorded on the part which accompanies a record medium is used. It is the record playback approach of the information signal which reproduces the information signal currently recorded on the record to said record medium of an information signal, and said record medium. If it is when recording said information signal on said record medium, from said record medium Or the medium related information read-out process by the side of the record which reads said medium related information from the part which accompanies said record medium, The additional information generation process which generates additional information based on said medium related information from the medium related information read-out process by the side of said record, The information addition process which adds said additional information generated by said additional information generation process to said information signal, It has the record process which records said information signal with which said additional information was added by said information addition process on said record medium. From said record medium Or the medium related information read-out process by the side of the playback which reads said medium related information from the part which accompanies said record medium, It is based on said medium related information read by the information signal read-out process which reads an information signal from said record medium, and the medium related information read-out means by the side of said playback. According to the additional information detection process of detecting said additional information added to said information signal, and said additional information detection process The information signal record playback approach equipped with the playback control process controlled to reproduce said information signal only when said additional information added to said information signal is detected.

[Claim 34] If it is when recording said information signal on said record medium Said additional information is generated by enciphering in said additional information generation process by the side of said record by using said medium related information from the medium related information read-out process by the side of said record as a cryptographic key. If it is when reproducing said information signal currently recorded on said record medium By decrypting in said additional information detection process by using said medium related information from the medium related information read-out process by the side of said playback as a decryption key The information signal record playback approach according to claim 33 characterized by detecting said additional information added to said information signal from said information signal read-out process.

[Claim 35] The information signal record playback approach according to claim 33 or 34 characterized by having the information signal elimination process which eliminates said information signal currently recorded on said record medium which it is going to reproduce in said additional information detection process when said additional information is not able to be detected from said information signal.

[Claim 36] Claim 33 characterized by having the notice process which notifies that said information signal is not reproduced in said additional information detection process when said additional information is not able to be detected from said information signal, the information signal record playback approach according to claim 34 or 35.

[Claim 37] It consists of the recording device section which records an information signal on a record medium, and the regenerative-apparatus section which reproduces the information signal recorded on the record medium. Said recording device section The equipment related information acquisition means by the side of the record which acquires the equipment related information which is the information relevant to the recording device which records an information signal, An information addition means to add said equipment related information acquired by the equipment related information acquisition means by the side of said record to said information signal, It has a record means to record said information signal to which said equipment related information was added by said information addition means on said record medium. Said regenerative-apparatus section The equipment related information acquisition means by the side of the playback which acquires the equipment related information which is the information relevant to the regenerative apparatus which reproduces an information signal, The information signal read-out means which reads an information signal from said record medium, and a detection means to detect said equipment related information added to said information signal from said information signal read-out means, Whether said equipment related information from the equipment related ***** means by the side of said playback and said equipment related information from said detection means are in agreement with a distinction means to distinguish, and said distinction means An information signal record regeneration system equipped with the playback control means controlled to reproduce said information signal only when said equipment related information from the equipment related information detection means by the side of said playback and said equipment related information from said detection means are in agreement.

[Claim 38] Said recording device section is equipped with the auxiliary record-medium charger stage by the side of the record loaded with an auxiliary record medium. The

equipment related information acquisition means by the side of said record It is what acquires said equipment related information from said auxiliary record medium with which the auxiliary record-medium charger stage by the side of said record was loaded. Said regenerative-apparatus section It has an auxiliary record-medium charger stage by the side of the playback loaded with an auxiliary record medium. The equipment related information acquisition means by the side of said playback The information signal record regeneration system according to claim 37 characterized by being what acquires said equipment related information from said auxiliary record medium with which the auxiliary record-medium charger stage by the side of said playback was loaded.

[Claim 39] Said recording device section is equipped with the diffusion means which carries out spectrum diffusion of said equipment related information from the equipment related information acquisition means by the side of said record. Said information addition means of said recording device section It is what superimposes said equipment related information by which spectrum diffusion was carried out with said diffusion means on said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 37 or 38 characterized by being what takes out said equipment related information on which spectrum diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons.

[Claim 40] Said recording apparatus section is equipped with a signal level conversion means by which minute level carries out the signal of said equipment related information from the equipment related information acquisition means by the side of said record. Said information addition means It is what adds said equipment related information made into the signal of minute level by said signal level conversion means to said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 37 or 38 characterized by being what takes out said equipment related information added to said information signal as a signal of minute level.

[Claim 41] Said recording device section is equipped with an encryption means to encipher said equipment related information from the equipment related information acquisition means by the side of said record. Said information addition means of said recording device section It is what adds said equipment related information enciphered by said encryption means to said information signal to record. The detection means of said regenerative-apparatus section The information signal record regeneration system according to claim 37 or 38 characterized by being what takes

out said equipment related information added to said information signal by extracting and decrypting said equipment related information which is enciphered by the information signal and added to it.

[Claim 42] When it is what shows that the equipment related information from the equipment related information acquisition means by the side of said playback and the equipment related information of the distinction result of said distinction means from said detection means do not correspond as for said regenerative-apparatus section Claim 37 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce, claim 38, claim 39, an information signal record regeneration system according to claim 40 or 41.

[Claim 43] Said regenerative-apparatus section is claim 37 characterized by to have a notice means to notify that an information signal is not reproduced when the distinction result of said distinction means is what shows that the equipment related information from the equipment related information acquisition means by the side of said playback and the equipment related information from said detection means are not in agreement, claim 38, claim 39, claim 40, and an information signal record regeneration system according to claim 41 or 42.

[Claim 44] It is the information signal record regeneration system which consists of the recording device section which records an information signal on said record medium, and the regenerative-apparatus section which reproduces the information signal recorded on said record medium. Said recording device section The equipment related information acquisition means by the side of the record which acquires the equipment related information which is the information relevant to the recording device which records an information signal, An additional information generation means to generate additional information based on said equipment related information from the medium related information acquisition means by the side of said record, An information addition means to add said additional information generated by said additional information generation means to said information signal, It has a record means to record said information signal to which said additional information was added by said information addition means on said record medium. Said regenerative-apparatus section The equipment related information acquisition means by the side of the playback which acquires the equipment related information which is the information relevant to the regenerative apparatus which reproduces an information signal, It is based on said equipment related information acquired by the information signal read-out means which reads an information signal from said record

medium, and the equipment related information acquisition means by the side of said playback. With an additional information detection means to detect said additional information added to said information signal from the information signal read-out means, and said additional information detection means An information signal record regeneration system equipped with the playback control means controlled to reproduce said information signal only when said additional information added to said information signal is detected.

[Claim 45] Said recording device section is equipped with the auxiliary record-medium charger stage by the side of the record loaded with an auxiliary record medium. The equipment related information acquisition means by the side of said record It is what acquires said equipment related information from said auxiliary record medium with which the auxiliary record-medium charger stage by the side of said record was loaded. Said regenerative-apparatus section It has an auxiliary record-medium charger stage by the side of the playback loaded with an auxiliary record medium. The equipment related information acquisition means by the side of said playback The information signal record regeneration system according to claim 44 characterized by being what acquires said equipment related information from said auxiliary record medium with which the auxiliary record-medium charger stage by the side of said playback was loaded.

[Claim 46] Said additional information generation means by the side of said record of said recording device section It is what generates said additional information by enciphering by using said equipment related information from the equipment related information acquisition means by the side of said record as a cryptographic key. Said additional information detection means of said regenerative-apparatus section by decrypting by using said equipment related information from the equipment related information acquisition means by the side of said playback as a decryption key The information signal record regeneration system according to claim 44 or 45 characterized by being what detects said additional information added to said information signal from said information signal read-out means.

[Claim 47] Said regenerative-apparatus section is claim 44 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when said additional information detection means is not able to detect said additional information from said information signal, and an information signal record regeneration system according to claim 45 or 46.

[Claim 48] Said regenerative-apparatus section is claim 44 characterized by having a

notice means to notify that said information signal is not reproduced when said additional information detection means is not able to detect said additional information from said information signal, claim 45, and an information signal record regeneration system according to claim 46 or 47.

[Claim 49] The information signal recording device which characterizes by to have had the equipment related-information acquisition means is the information signal recording device which adds and records the equipment related information which is the information relevant to a recording device on the information signal which records on a record medium, and acquire said equipment related information, the information addition means add said equipment related information acquired by the equipment related-information acquisition means to said information signal, and the record means record said information signal to which said equipment related information was added by said information addition means on said record medium.

[Claim 50] It is the information signal recording device according to claim 49 which is equipped with the auxiliary record-medium charger stage loaded with an auxiliary record medium, and is characterized by said equipment related information acquisition means being what acquires said equipment related information from said auxiliary record medium with which said auxiliary record-medium charger stage was loaded.

[Claim 51] It is the information signal recording device according to claim 49 or 50 which is equipped with the diffusion means which carries out spectrum diffusion of said equipment related information from said equipment related information acquisition means, and is characterized by said information addition means being what superimposes said equipment related information by which spectrum diffusion was carried out with said diffusion means on said information signal to record.

[Claim 52] It is the information signal recording device according to claim 49 or 50 which is equipped with a signal level conversion means by which minute level carries out the signal of said equipment related information from said equipment related information acquisition means, and is characterized by said information addition means being what adds said equipment related information made into the signal of minute level by said signal level conversion means to said information signal to record.

[Claim 53] It is the information signal recording device according to claim 49 or 50 which is equipped with an encryption means to encipher said equipment related information from said equipment related information acquisition means, and is characterized by said said information addition means being what adds said equipment related information enciphered by said encryption means to said information signal to record.

[Claim 54] It is the information signal recording device which adds and records the additional information generated based on the equipment related information which is the information relevant to a recording device on the information signal recorded on a record medium. An equipment related information acquisition means to acquire the equipment related information which is the information relevant to the recording device which records an information signal, An additional information generation means to generate additional information based on said equipment related information from said medium related information acquisition means, an information addition means to add said additional information generated by said additional information generation means to said information signal, and a record means to record said information signal to which said additional information was added by said information addition means on said record medium -- **** -- the information signal recording device characterized by things.

[Claim 55] It is the information signal recording device according to claim 54 which is equipped with the auxiliary record-medium charger stage loaded with an auxiliary record medium, and is characterized by said equipment related information acquisition means being what acquires said equipment related information from said auxiliary record medium with which said auxiliary record-medium charger stage was loaded.

[Claim 56] Said additional information generation means is the setting device 54 characterized by being what generates said additional information, or an information signal recording device according to claim 55 by enciphering by using said equipment related information from said equipment related information acquisition means as a cryptographic key.

[Claim 57] The equipment related information acquisition means by the side of the playback which acquires the equipment related information which is the regenerative apparatus of the information signal which the equipment related information relevant to a recording device was added, and was recorded on the record medium, and is the information relevant to the regenerative apparatus which reproduces an information signal, The information signal read-out means which reads an information signal from said record medium, and a detection means to detect said equipment related information added to said information signal from said information signal read-out means, Whether the equipment related information from said equipment related information acquisition means and the equipment related information from said detection means are in agreement with a distinction means to distinguish, and said distinction means The information signal regenerative apparatus characterized by having the playback control means controlled to reproduce said information signal only

when the equipment related information from said equipment related information acquisition means and the equipment related information from said detection means are in agreement.

[Claim 58] It is the information signal regenerative apparatus according to claim 57 which is equipped with the auxiliary record-medium charger stage loaded with an auxiliary record medium, and is characterized by said equipment related information acquisition means being what acquires said equipment related information from said auxiliary record medium with which said auxiliary record-medium charger stage was loaded.

[Claim 59] It is the information signal regenerative apparatus according to claim 57 or 58 which spectrum diffusion is carried out, is superimposed on the equipment related information added to said information signal by said information signal, and is characterized by said detection means being what takes out said equipment related information on which spectrum diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons.

[Claim 60] It is the information signal regenerative apparatus according to claim 57 or 58 which the equipment related information added to said information signal is added as a signal of minute level, and is characterized by said detection means being what takes out said equipment related information added to said information signal as a signal of minute level.

[Claim 61] When it is enciphered, the additional information added to said information signal is added to said information signal and said detection means extracts and decrypts said equipment related information which is enciphered by the information signal and added to it, it is the information signal regenerative apparatus according to claim 57 or 58 characterized by being what takes out said equipment related information added to said information signal.

[Claim 62] Claim 57 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when the distinction result of said distinction means is what shows that the equipment related information from said equipment related information acquisition means and the equipment related information from said detection means are not in agreement, claim 58, claim 59, an information signal regenerative apparatus according to claim 60 or 61.

[Claim 63] Claim 57 characterized by having a notice means to notify that an information signal is not reproduced when the distinction result of said distinction means is what shows that the equipment related information from said equipment

related information acquisition means and the equipment related information from said detection means are not in agreement, claim 58, claim 59, claim 60, an information signal regenerative apparatus according to claim 61 or 62.

[Claim 64] An equipment related information acquisition means to acquire the equipment related information which is the regenerative apparatus of the information signal which the equipment related information relevant to a recording device was added, and was recorded on the record medium, and is the information relevant to the regenerative apparatus which reproduces an information signal, It is based on said equipment related information acquired by the information signal read-out means which reads an information signal from said record medium, and said equipment related information acquisition means. With an additional information detection means to detect said additional information added to said information signal from the information signal read-out means, and said additional information detection means An information signal regenerative apparatus equipped with the playback control means controlled to reproduce said information signal only when said additional information added to said information signal is detected.

[Claim 65] It is the information signal regenerative apparatus according to claim 64 which is equipped with the auxiliary record-medium charger stage loaded with an auxiliary record medium, and is characterized by said equipment related information acquisition means being what acquires said equipment related information from said auxiliary record medium with which said auxiliary record-medium charger stage was loaded.

[Claim 66] It is the information signal regenerative apparatus according to claim 64 or 65 which it is enciphered as a cryptographic key, and said additional information added to said information signal is formed in said equipment related information, and is characterized by said additional information detection means being what detects said additional information added to said information signal from said information signal read-out means by decrypting by using said equipment related information from said equipment related information acquisition means as a decryption key.

[Claim 67] Claim 64 characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce when said additional information detection means is not able to detect said additional information from said information signal, an information signal regenerative apparatus according to claim 65 or 66.

[Claim 68] Claim 64 characterized by having a notice means to notify that said information signal is not reproduced when said additional information detection means

is not able to detect said additional information from said information signal, claim 65, an information signal regenerative apparatus according to claim 66 or 67.

[Claim 69] It is the record playback approach of the information signal which reproduces the information signal currently recorded on the record to said record medium of an information signal, and said record medium. If it is when recording said information signal on said record medium The equipment related information acquisition process by the side of the record which acquires the equipment related information which is the information relevant to the recording device which records an information signal, The information addition process which adds said equipment related information acquired by the equipment related information acquisition process by the side of said record to said information signal, It has the record process which records said information signal with which said equipment related information was added by said information addition process on said record medium. If it is when reproducing said information signal currently recorded on said record medium The equipment related information acquisition process by the side of the playback which acquires the equipment related information which is the information relevant to the regenerative apparatus which reproduces an information signal, The information signal read-out process which reads an information signal from said record medium, and the detection process which detects said equipment related information added to said information signal from said information signal read-out process, Whether said equipment related information from the equipment related ***** process by the side of said playback and said equipment related information from said detection process are in agreement according to the distinction process to distinguish and said distinction process The information signal record playback approach equipped with the playback control process controlled to reproduce said information signal only when said equipment related information from the equipment related information detection process by the side of said playback and said equipment related information from said detection process are in agreement.

[Claim 70] If it is when recording said information signal on said record medium Have the diffusion process which carries out spectrum diffusion of said equipment related information from the equipment related information acquisition process by the side of said record, and it sets at said information addition process. If it is when reproducing said information signal which superimposes said equipment related information by which spectrum diffusion was carried out in said diffusion process on said information signal to record, and is recorded on said record medium The information signal record playback approach according to claim 69 characterized by taking out said equipment

related information on which spectrum diffusion is carried out and said information signal is overlapped by performing the spectrum back diffusion of electrons in said detection process.

[Claim 71] If it is when recording said information signal on said record medium Have the signal level conversion process that minute level carries out the signal of said equipment related information from said equipment related information acquisition process, and it sets at said information addition process. Add said equipment related information made the signal of minute level by said signal level conversion process to said information signal to record, and if it is when reproducing said information signal currently recorded on said record medium, it sets at said detection process. The information signal record playback approach according to claim 69 characterized by taking out said equipment related information added to said information signal as a signal of minute level.

[Claim 72] If it is when recording said information signal on said record medium Have the encryption process which enciphers said equipment related information from the equipment related information acquisition process by the side of said record, and it sets at said information addition process. If it is when reproducing said information signal which adds said equipment related information enciphered by said encryption process to said information signal to record, and is recorded on said record medium The information signal record playback approach according to claim 69 characterized by taking out said equipment related information added to said information signal by extracting and decrypting said equipment related information which is enciphered by the information signal and added to it in said detection process.

[Claim 73] When the distinction result of said distinction process is what shows that said equipment related information acquired by the equipment related information acquisition process by the side of said playback and said equipment related information from said detection process are not in agreement Claim 69 characterized by having the information signal elimination process which eliminates said information signal currently recorded on said record medium which it is going to reproduce, claim 70, the information signal record playback approach according to claim 71 or 72.

[Claim 74] Claim 69 characterized by to have the notice process which notifies that an information signal is not reproduced when the distinction result of said distinction process is what shows that said equipment related information from the equipment related information acquisition process by the side of said playback and the equipment related process from said detection process are not in agreement, claim 70, claim 71, the information signal record playback approach according to claim 72 or 73.

[Claim 75] It is the record playback approach of the information signal which reproduces the information signal currently recorded on the record to said record medium of an information signal, and said record medium. If it is when recording said information signal on said record medium The equipment related information acquisition process by the side of the record which acquires the equipment related information which is the information relevant to the recording device which records an information signal, The additional information generation process which generates additional information based on said equipment related information from the medium related information acquisition process by the side of said record, The information addition process which adds said additional information generated by said additional information generation process to said information signal, It has the record process which records said information signal with which said additional information was added by said information addition process on said record medium. If it is when reproducing said information signal currently recorded on said record medium The equipment related information acquisition process by the side of the playback which acquires the equipment related information which is the information relevant to the regenerative apparatus which reproduces an information signal, It is based on said equipment related information acquired by the information signal read-out process which reads an information signal from said record medium, and the equipment related information acquisition process by the side of said playback. According to the additional information detection process of detecting said additional information added to said information signal from the information signal read-out process, and said additional information detection process The information signal record playback approach equipped with the playback control process controlled to reproduce said information signal only when said additional information added to said information signal is detected.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention adds additional information to information signals, such as a video signal, records it on a record medium, and relates to the recording device and regenerative apparatus which are used for the record regeneration system which takes out the additional information added to the information signal, and is made to perform playback control at the time of playback, the record playback approaches, these systems, and an approach.

[0002]

[Description of the Prior Art] In recent years, the video signal and sound signal which many software reproducible using the regenerative apparatus of digital VTR or DVD (digital videodisc) and these equipments was offered, and were digitized also at the home can be reproduced easily, and it can view and listen now to the good image of image quality and tone quality, and voice.

[0003] Moreover, using the video signal digitized through record media, such as the Internet and CD-ROM (compact disk ROM), etc., a sound signal, or the digitized software with which abundance is provided with a program and it is offered through these Internet, CD-ROM, etc. using a personal computer etc. is performed increasingly widely.

[0004] However, it is one side and there is a problem that there is a possibility that software, such as a digitized video signal with which abundance came to be provided in this way, may be reproduced without any restriction. For this reason, various kinds of duplicate prevention approaches for preventing the illegal duplicate of information signals, such as a video signal and a sound signal, from the former are adopted.

[0005] As one of the duplicate prevention approaches, there is a duplicate limit method of two or more generations called CGMS (copy generation management system). This method embeds only duplicate freedom and one generation of duplicate control information by the three-stage of a duplicate good and the ban on a duplicate at the information signal. For example, when only "00" and the 1st generation can be

reproduced in the case of duplicate freedom, in "10" and the ban on a duplicate, 2-bit duplicate control information is embedded like "11" at an information signal. However, in the ban on a duplicate, duplicate control information cannot be induced at an information signal.

[0006] And when reproducing an information signal to a record medium, the duplicate control information of the CGMS method currently embedded at the information signal is detected, and duplicate control according to the detected duplicate control information is performed. In this case, since duplicate control information is not embedded in the ban on a duplicate, when duplicate control information is undetectable, the duplicate of an information signal is made not to be made.

[0007] Thus, if it is not only control of the ban on a duplicate, and authorization but the 1st generation, it enables it to make it possible to accept a duplicate, and is coming to be able to perform flexible duplicate prevention control.

[0008]

[Problem(s) to be Solved by the Invention] however -- for example, -- when performing duplicate prevention control using a CGMS method etc., even if it is the case where the duplicate control information which can be reproduced is added to an information signal only duplicate freedom or the 1st generation -- the provider side of an information signal -- then, the duplicate of an information signal has the demand given to wanting to restrict to the duplicate of the sake for [which an individual uses / which is performed for accumulating] the so-called individual treatment at a home etc.

[0009] That is, it is not that it is desirable for the provider side of an information signal that the reproduced information signal flows out generally and widely by performing reproduction many times even if it is the information signal with which the duplicate is permitted even if although it is satisfactory in using the information signal which the individual reproduced the information signal to the record medium at the home etc., and the individual reproduced.

[0010] In order to prevent the outflow of such a reproduced information signal, the provider side of an information signal adds the duplicate control information of the ban on a duplicate to the information signal which is offered in offering an information signal more often, or it is also considered that the charge of offer of an information signal itself becomes high. In this case, it is [the duplicate of the sake for individual treatment] is also restricted and is not desirable.

[0011] Even if this invention is an information signal with which the duplicate is permitted in view of the above thing, it aims at offering the recording device and

regenerative apparatus which are used by the information signal record regeneration system which can restrict the duplicate of that information signal to the duplicate of the sake for individual treatment, the information signal record playback approaches, these systems, and the approach.

[0012]

[Means for Solving the Problem] The field where the information signal record regeneration system of invention according to claim 1 has the medium related information separate from the information signal on a record medium which is the information about a record medium in order to solve the above-mentioned technical problem, Or the recording device section which records an information signal on said record medium using the record medium currently beforehand recorded on the part which accompanies a record medium, It is the information signal record regeneration system which consists of the regenerative-apparatus section which reproduces the information signal recorded on said record medium. Said recording device section from said record medium Or the medium related information read-out means by the side of the record which reads said medium related information from the part which accompanies said record medium, An information addition means to add said medium related information read by the medium related information read-out means by the side of said record to said information signal, It has a record means to record said information signal to which said medium related information was added by said information addition means on said record medium. Said regenerative-apparatus section from said record medium Or the medium related information read-out means by the side of the playback which reads said medium related information from the part which accompanies said record medium, The information signal read-out means which reads an information signal from said record medium, and a detection means to detect said medium related information added to said information signal from said information signal read-out means, Whether said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are in agreement with a distinction means to distinguish, and said distinction means When said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are in agreement, it is characterized by having the playback control means controlled to reproduce said information signal.

[0013] According to the information signal record regeneration system of this invention according to claim 1, when it is going to record an information signal, medium

related information is read from the part which accompanies the record medium which records an information signal, or a record medium with the medium related information read-out means by the side of record. And the information signal with which the read medium related information was added to the information signal by the information addition means, and this medium related information was added is recorded on a record medium. This medium related information is a serial number which is the information on a proper, for example, is recorded on TOC (table of contents) of that disk for every record medium when a record medium is a disk.

[0014] And the medium related information of that record medium is read from the part which accompanies the record medium which it is going to reproduce, or this record medium with the medium related information read-out means by the side of playback at the time of playback of the information signal recorded on the record medium. Moreover, the medium related information added to the information signal which it is going to reproduce by the detection means is detected.

[0015] When the medium related information read by the medium related information read-out means by the side of these playbacks and the medium related information detected from the information signal by the detection means are in agreement, it is made to be carried out in playback of an information signal.

[0016] That is, when record processing is usually carried out to a passage by the recording device section, the medium related information added to an information signal and the medium related information of the record medium with which the information signal is recorded are in agreement. However, when the whole information currently recorded on the record medium is copied to other record media as it was by other approaches, the medium related information of a record medium and the medium related information of the information signal recorded on this are not in agreement.

[0017] Therefore, when the medium related information added to the information signal and the medium related information of the record medium with which the information signal was recorded are in agreement as mentioned above, an information signal is the usual approach, judges that it is the information signal reproduced the sake [for individual treatment], and is reproduced. On the contrary, when the medium related information added to the information signal and the medium related information of the record medium with which the information signal was recorded are not in agreement, the information signal judges that it is reproduced by approaches other than the usual approach, and it is made not to be reproduced.

[0018] Although the information signal reproduced by the recording device section by the usual approach is reproducible satisfactory at all by this, since it is unreproducible,

the information signal usually reproduced by the approach of an except can prevent the duplicate of information signals other than the duplicate aiming at the object for individual treatment.

[0019] Invention according to claim 2 is an information signal record regeneration system according to claim 1. Moreover, said recording device section It has the diffusion means which carries out spectrum diffusion of said medium related information from the medium related information read-out means by the side of said record. Said information addition means of said recording device section It is what superimposes said medium related information by which spectrum diffusion was carried out with said diffusion means on said information signal to record. The detection means of said regenerative-apparatus section By performing the spectrum back diffusion of electrons, it is characterized by being what takes out said medium related information on which spectrum diffusion is carried out and said information signal is overlapped.

[0020] According to the information signal record regeneration system of this invention according to claim 2, in the recording device section, the information signal which the medium related information by which spectrum diffusion was carried out with the diffusion means records is overlapped. And in the regenerative-apparatus section, the medium related information on which the information signal which the spectrum back diffusion of electrons is performed with a detection means, and is reproduced is overlapped is detected.

[0021] Thus, since spectrum diffusion is carried out and an information signal is overlapped on medium related information, when the medium related information on which the information signal is overlapped differs from the medium related information of the record medium with which this information signal is recorded, the medium related information on which the information signal is overlapped is altered unjustly, and it prevents from performing the injustice of making it in agreement with the medium related information of the record medium concerned etc.

[0022] Moreover, the information signal record regeneration system of invention according to claim 3 It is the record regeneration system of an information signal according to claim 1. Said recording device section It has a signal level conversion means by which minute level carries out the signal of said medium related information from the medium related information read-out means by the side of said record. Said information addition means It is what adds said medium related information made into the signal of minute level by said signal level conversion means to said information signal to record. The detection means of said regenerative-apparatus section It is

characterized by being what takes out said medium related information added to said information signal as a signal of minute level.

[0023] According to this information signal record regeneration system according to claim 3, it is added to an information signal, medium related information added to the information signal to record being used as the signal of minute level by the level-conversion means, and the medium related information added as a signal of minute level by the detection means is detected in the regenerative-apparatus section.

[0024] Thereby, by various kinds of approaches, it can add to an information signal by the ability making medium related information into the so-called digital-watermarking information (watermark), and the digital-watermarking information added to the information signal can be detected and used further. Moreover, since medium related information is made into the signal of minute level, it prevents from altering easily the medium related information added to the information signal.

[0025] Moreover, the information signal record regeneration system of invention according to claim 4 It is an information signal record regeneration system according to claim 1. Said recording device section It has an encryption means to encipher said medium related information from the medium related information read-out means by the side of said record. Said information addition means of said recording device section It is what adds said medium related information enciphered by said encryption means to said information signal to record. The detection means of said regenerative-apparatus section It is characterized by being what takes out said medium related information added to said information signal by extracting and decrypting said medium related information which is enciphered by the information signal and added to it.

[0026] According to this information signal record regeneration system according to claim 4, it is enciphered by the encryption means and the medium related information added to the information signal to record is added to an information signal, and in the regenerative-apparatus section, the enciphered medium related information which is added to the information signal by the detection means is decrypted, and it is detected.

[0027] Since it is enciphered and an information signal is overlapped on medium related information, it prevents from performing easily by this the thing of altering unjustly the medium related information on which the information signal was overlapped.

[0028] Moreover, the information signal record regeneration system of invention

according to claim 5 They are claim 1, claim 2, and an information signal record regeneration system according to claim 3 or 4. Said regenerative-apparatus section When the distinction result of said distinction means is what shows that said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are not in agreement It is characterized by having an information signal elimination means to eliminate said information signal currently recorded on said record medium which it is going to reproduce.

[0029] When the medium related information which is superimposed by the information signal and added to it differs from the medium related information of the record medium with which this information signal is recorded according to this information signal record regeneration system according to claim 5, it judges that the information signal currently recorded on the record medium is not what was reproduced proper by the usual approach, and prevents from using an information signal with an information signal elimination means.

[0030] While being able to avoid using the information signal reproduced unfairly by this, the unjust duplicate of an information signal itself can be prevented.

[0031] Moreover, the information signal record regeneration system of invention according to claim 6 They are claim 1, claim 2, claim 3, and an information signal record regeneration system according to claim 4 or 5. Said regenerative-apparatus section When the distinction result of said distinction means is what shows that said medium related information from the medium related information read-out means by the side of said playback and said medium related information from said detection means are not in agreement, it is characterized by having a notice means to notify that an information signal is not reproduced.

[0032] When the medium related information which is superimposed by the information signal and added to it differs from the medium related information of the record medium with which this information signal is recorded according to the information signal record regeneration system of this invention according to claim 6, although it is made not to be reproduced by the information signal concerned, it is notified by the notice means in this case that an information signal is not generated.

[0033] Thereby, a user does not mistake for failure of the regenerative-apparatus section, when it can know that an information signal will not be reproduced and an information signal is not reproduced, since the medium related information which is superimposed by the information signal and added to it differs from the medium related information of the record medium with which this information signal is

recorded.

[0034] Moreover, the field where the information signal record regeneration system of invention according to claim 7 has the medium related information separate from the information signal on a record medium which is the information about a record medium, Or the recording device section which records an information signal on said record medium using the record medium currently beforehand recorded on the part which accompanies a record medium, It is the information signal record regeneration system which consists of the regenerative-apparatus section which reproduces the information signal recorded on said record medium. Said recording device section from said record medium Or the medium related information read-out means by the side of the record which reads said medium related information from the part which accompanies said record medium, An additional information generation means to generate additional information based on said medium related information from the medium related information read-out means by the side of said record, An information addition means to add said additional information generated by said additional information generation means to said information signal, It has a record means to record said information signal to which said additional information was added by said information addition means on said record medium. Said regenerative-apparatus section from said record medium Or the medium related information read-out means by the side of the playback which reads said medium related information from the part which accompanies said record medium, It is based on said medium related information read by the information signal read-out means which reads an information signal from said record medium, and the medium related information read-out means by the side of said playback. With an additional information detection means to detect said additional information added to said information signal, and said additional information detection means An information signal record regeneration system equipped with the playback control means controlled to reproduce said information signal when said additional information added to said information signal is detected.

[0035] According to the information signal record regeneration system of this invention according to claim 7, when recording an information signal, in an additional information generation means, the additional information based on the medium related information read by the medium related information read-out means by the side of record is generated. The information signal with which the additional information generated here was added to the information signal by the information addition means, and this additional information was added is recorded on a record medium.

[0036] Thus, in reproducing the information signal recorded on the record medium, it

detects the additional information added to the information signal which it is going to reproduce with an additional information detection means based on the medium related information read by the medium related information read-out means by the side of playback.

[0037] And when the additional information added to this is detected from the information signal which it is going to reproduce, an information signal is reproduced, and when additional information is not detected, it is made not to reproduce the information signal in an additional information detection means.

[0038] Thus, the medium related information read to the information signal by the medium related information read-out means by the side of record at the time of record is used as the so-called creation key of the additional information added to an information signal. Moreover, the medium related information read by the medium related information read-out means by the side of playback at the time of playback of an information signal is used as the so-called detection key of the additional information to which it was added by the information signal.

[0039] And also in the information signal record regeneration system of this invention according to claim 7, when record processing is usually carried out to a passage by the recording device section, it is made in agreement [the medium related information added to an information signal and the medium related information of the record medium with which that information signal is recorded]. For this reason, when the additional information which should be added to the information signal at the time of playback of an information signal is undetectable, the whole information currently recorded on the record medium is judged to be what the information signal was recorded on by approaches other than the usual approach of copying to other record media as it is, and it is made not to reproduce that information signal.

[0040] Thereby, since it is unreproducible, the information signal usually reproduced by the approach of an except can prevent the duplicate of information signals other than the duplicate aiming at the object for individual treatment.

[0041]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained, referring to drawing.

[0042] [the gestalt of the 1st operation] -- in the gestalt of this 1st operation, the information signal recording device (only henceforth a recording device) 10 explained below receives the digital information signal offered through networks, such as the Internet, and records it on a record medium.

[0043] Moreover, the information signal regenerative apparatus (only henceforth a

regenerative apparatus) 20 reproduces the information signal recorded on the record medium, for example, it displays on a display or it processes transmitting to other communication equipment etc. through networks, such as the Internet.

[0044] That is, a recording device 10 and regenerative apparatus 20 are equipments, such as a personal computer which can send and receive an information signal, through networks, such as the Internet, and is [a recording device 10] equivalent to the recording system of equipments, such as a personal computer, and a regenerative apparatus 10 is equivalent to the reversion system of equipments, such as a personal computer.

[0045] And in recording an information signal on a record medium so that it may mention later in detail, the medium proper information on a proper is added to an information signal for every record medium, and it makes it record on a record medium in the gestalt of this 1st operation as information about the record medium which records an information signal. Moreover, it is made to reproduce when the above-mentioned medium proper information added to the information signal to reproduce when reproducing the information signal recorded on the record medium, and the medium proper information which the record medium with which this information signal to reproduce is recorded has are in agreement.

[0046] That is, when an information signal is reproduced by the usual approach using the recording device 10 which an individual user explains below for the purpose of the object for individual treatment, it is made in agreement [the medium proper information added to the reproduced information signal and the medium proper information which the record medium with which the information signal was recorded has].

[0047] And by copying the information signal currently recorded, for example on one record medium to other record media as it is, without adding the medium proper information on the record medium to the information signal which records an information signal and which is recorded for every record medium (duplicate) When the same information signal as many record media is reproduced As mentioned above, since the medium proper information added to the information signal in agreement and the medium proper information which the record medium with which the information signal is recorded has are not in agreement when it reproduces by the usual approach, In this case, playback is forbidden and the unjust duplicate of the information signal in a different approach from usual is prevented.

[0048] [Recording device 10] The recording device 10 of the gestalt of this 1st operation is explained first. Drawing 1 is a block diagram for explaining the recording

apparatus 10 of the gestalt of the 1st operation. As shown in drawing 1, the recording device 10 of the gestalt of this 1st operation is the input terminal 11 of an information signal, the duplicate prevention control information detecting element 12, the timing generation section 13, and SS (it is here and SS is the abbreviation for spectrum diffusion.). It has the system controller 200 which controls the same additional information generation section 14, SS additional information superposition section 15, the write-in section 16, the medium proper information read-out section 17, and each part of this recording device 10 below.

[0049] Moreover, record media 100 are disks in which various kinds of digital information signals, such as a digital video signal, a digitized voice signal, and a program, are written by this recording apparatus 10, such as CD-ROM and DVD. In order to simplify explanation below, the information signal which is supplied to this recording apparatus 10 and recorded on a disk 100 is explained through the input terminal 11 of an information signal as what is a digital video signal.

[0050] Moreover, in the gestalt of this 1st operation, insertion addition of the duplicate prevention control information called CGMS (copy generation management system) to the digital video signal S1 supplied to a recording apparatus 10 is carried out. The duplicate prevention control information called this CGMS is 2-bit duplicate control information which shows the contents of the duplicate control to the digital video signals S1, such as duplicate authorization, a ban on a duplicate, and a generation limit.

[0051] In the gestalt of this 1st operation, through the actuation key section 201 which the recording device 10 was loaded with the disk 100 which records an information signal, and was connected to the system controller 200, if initiation directions of record of a video signal are given by the user, a system controller 200 will control each part of a recording device 10 to start the record processing which records the supplied information signal on a disk 100.

[0052] In the gestalt of this 1st operation, it is transmitted through networks, such as the Internet, and the digital video signal S1 which the recording apparatus 10 received is supplied to the duplicate prevention control information detecting element 12 of a recording apparatus 10, the timing generation section 13, and SS additional information superposition section 15.

[0053] The duplicate prevention control information detecting element 12 detects the duplicate prevention control information of the CGMS method added to the supplied digital video signal S1, and notifies the detected duplicate prevention control information to a system controller 200.

[0054] A system controller 200 controls each part not to record the digital video

signal S1, when the information from the duplicate prevention control information detecting element 12 is what shows that a duplicate is forbidden. Moreover, when the information from the duplicate prevention control information detecting element 12 is what permits a duplicate, each part of a recording apparatus 10 is controlled and it is made to perform record to the record medium 100 of a digital video signal.

[0055] When the digital video signal S1 can be reproduced, the medium proper information read-out section 17 reads the serial number of a proper for every disk of a disk 100 currently recorded on TOC (Table Of Contents), and supplies it to SS additional information generation section 14 by making this into the medium proper information B1.

[0056] The timing generation section 13 detects a criteria timing signal from the supplied digital video signal S1, and generates timing signal TM and the clock signal CLK which are used in each part of the recording device 10 of the gestalt of this 1st operation based on the detected criteria timing signal.

[0057] Drawing 2 is a block diagram for explaining the timing generation section 13 of the recording apparatus 10 of the gestalt of this 1st operation. As shown in drawing 2, the timing generation section 13 is equipped with the criteria timing detecting element 131, the PLL circuit 132, and the timing signal generation section 133.

[0058] From the digital video signal S1 supplied to this, the criteria timing detecting element 131 extracts the synchronizing signal DK as a criteria timing signal, and supplies this to the PLL circuit 132 and the timing signal generation section 133.

[0059] The PLL circuit 132 generates the clock signal CLK which synchronized with the digital video signal S1 based on the synchronizing signal DK from the criteria timing detecting element 131. This clock signal CLK is supplied to each part using these clock signals CLK, such as SS additional information generation section 14 mentioned later, while it is supplied to the timing signal generation section 133.

[0060] The timing signal generation section 133 generates and outputs timing signal TM used in SS additional information generation section 14 mentioned later, and various kinds of other timing signals based on the synchronizing signal DK from the criteria timing detecting element 131, and the clock signal CLK from the PLL circuit 131.

[0061] In the gestalt of this 1st operation, timing signal TM generated in the timing signal generation section 133 is used in SS additional information generation section 14 which synchronizes with a synchronizing signal DS from the criteria timing detecting element 131, and is mentioned later as a reset (initialization) signal which shows the timing for generating the PN code train which has the sign pattern which is

used for spectrum diffusion, and which was decided beforehand from that head.

[0062] For example, in the criteria timing detecting element 131 of the timing generation section 13, when a Vertical Synchronizing signal is extracted as a criteria timing signal, in the PLL circuit 132, the clock signal CLK which synchronized with the Vertical Synchronizing signal from the criteria timing detecting element 131 is generated.

[0063] Moreover, in the timing signal generation section 133, timing signal TM which synchronizes with the Vertical Synchronizing signal used as a criteria timing signal is generated as the 1 perpendicular section (1 field) is made into one period based on the Vertical Synchronizing signal from the criteria timing detecting element 131, and the clock signal CLK from the PLL circuit 132.

[0064] Thus, timing signal TM and the clock signal CLK which were generated in the timing generation section 13 are supplied to SS additional information generation section 14, as shown in drawing 1.

[0065] SS additional information generation section 14 generates SS medium proper information (SS additional information) SB 1 which is the spectrum diffusion signal of the medium proper information B1 in response to supply of the medium proper information B1, timing signal TM, and a clock signal CLK.

[0066] Drawing 3 is a block diagram for explaining SS additional information generation section 14 of the gestalt of this 1st operation. As shown in drawing 3, SS additional information generation section 14 is equipped with PN (Pseudorandom Noise; pseudo-random noise) sign generating section 141 and the multiplication section 142.

[0067] The PN code generating section 141 generates the PN code train PS based on timing signal TM and a clock signal CLK. Namely, in the gestalt of this 1st operation, for every timing to which timing signal TM was supplied, the PN code generating section 141 generates the PN code train PS from that head synchronizing with a clock signal CLK, and supplies this to the multiplication section 142.

[0068] Moreover, medium proper information train B1R timing signal TM indicates each bit of the medium proper information B1 from the medium proper information read-out section 12 to be, which was beforehand decided for every timing synchronizing with the clock signal CLK and which was formed as outputted several clock minutes is supplied to the multiplication section 142.

[0069] The multiplication section 142 performs the multiplication of the PN code train PS and medium proper information train B1R, and generates the spectrum diffusion signal (SS medium proper information) SB 1 which is the medium proper information by which spectrum diffusion was carried out.

[0070] thus, the thing which SS additional information generation section 14 does for the spectrum diffusion of the medium proper information B1 using the PN code train PS -- the after-mentioned -- as -- it has the function as a diffusion means which makes a narrow-band and medium proper information B1 on a high level SS medium proper information SB 1 on a broadband and a low.

[0071] Drawing 4 is drawing showing the example of a configuration of the PN code generating section 141 shown in drawing 3. The PN code generating section 141 of this example consists of 12 D-flip-flop circuits REG1-REG12 which constitute 12 steps of shift registers, and IKUSUKURUSHIBUOA circuit EX-OR1 which calculates the proper tap output of this shift register -- EX-OR3. And the PN code generating section 141 shown in drawing 4 generates the PN code train PS of an M sequence based on timing signal TM and a clock signal CLK, as mentioned above.

[0072] In addition, in drawing 4, an enable signal EN is a signal for making the PN code generating section 141 into operating state, and the gestalt of this 1st operation sets it, it is generated by supplying a power source to the recording device 10 shown in drawing 1, for example, and is supplied to the PN code generating section 141.

[0073] SS medium proper information SB 1 acquired from SS additional information generation section 14 as mentioned above is supplied to SS additional information superposition section 15.

[0074] The signal superposition section 15 forms the digital video signal S1 and the digital video signal S2 with which it was superimposed on SS medium proper information SB 1 on a digital signal in response to supply with the digital SS medium proper information SB 1.

[0075] SS additional information superposition section 15 superimposes SS medium proper information SB 1 on the 9th bit which is the least significant bit (LSB) of this 10-bit digital video signal, and the next bit of the least significant bit, when the digital video signal S1 is the 10-bit source expressed by 10 bits in the image for 1 pixel. Thus, SS additional information superposition section 15 superimposes SS medium proper information SB 1 in the same time amount and the same frequency to the digital video signal S1.

[0076] Moreover, SS additional information superposition section 15 is signal power lower than the dynamic range of the digital video signal S1, and it is made for SS medium proper information SB 1 not to degrade the digital video signal S1 in this case by superimposing SS medium proper information SB 1 on the digital video signal S1. Thus, in SS additional information superposition section 15, the digital video signal S2 formed by superimposing SS medium proper information SB 1 on the digital video

signal S1 is supplied to the write-in section 16.

[0077] The write-in section 16 changes this into the digital video signal for record suitable for record in response to supply of the digital video signal S2 with which it was superimposed on the digital SS medium proper information SB 1, and writes the digital video signal for this record in a record medium 100. The digital video signal with which it was superimposed on SS medium proper information SB 1 which is the medium proper information by which spectrum diffusion was carried out by this is recorded on a record medium 100.

[0078] And it can be made to perform neither alteration nor elimination, without degrading the playback image by the digital video signal concerned, since spectrum diffusion of the SS medium proper information SB 1 on which the digital video signal recorded on the record medium 100 was overlapped is carried out so that it may explain below.

[0079] Drawing 5 shows relation with a video signal by the spectrum in additional information, such as medium proper information that an information signal is added, and the example of *****. There is little amount of information by which additional information is included in this, it is the signal of a low bit rate, and as shown in drawing 5 (a), it is the signal of a narrow-band. If spectrum diffusion is performed to this, it will become the signal of broadband width of face as shown in drawing 5 (b). At this time, spectrum diffusion signal level becomes small in inverse proportion to the expansion ratio of a band.

[0080] Although this spectrum diffusion signal SB 1, i.e., SS medium proper information, is made to superimpose on an information signal in SS additional information superposition section 15, SS medium proper information SB 1 is made to superimpose in this case, on level smaller than the dynamic range of the video signal as an information signal, as shown in drawing 5 (c). Thus, degradation of an information signal can be prevented from almost being generated by superimposing. Therefore, when the video signal with which it was superimposed on SS medium proper information SB 1 is supplied to a monitor receiving set and an image is reproduced, there is almost no effect of SS medium proper information SB 1, and a good playback image is acquired.

[0081] However, if the spectrum back diffusion of electrons is performed in order to be a record side and to detect SS medium proper information SB 1 as additional information so that it may mention later, as shown in drawing 5 (d), SS medium proper information SB 1 will be again restored as a signal (additional information) of a narrow-band. By giving sufficient band diffusion coefficient, the power of the duplicate

control information after the back diffusion of electrons exceeds an information signal, and becomes detectable.

[0082] In this case, since SS medium proper information SB 1 on which the video signal was overlapped is superimposed in the same time amount as a video signal, and the same frequency, in replacement of a frequency filter and simple information, deletion and correction are impossible for it.

[0083] the above-mentioned -- as -- since spectrum diffusion is carried out and SS medium proper information SB 1 on which a digital video signal is overlapped is superimposed as a signal of a broadband and a low, the video signal reproduced by the digital video signal concerned is not degraded

[0084] Moreover, for SS medium proper information SB 1, it is impossible and it is ** to alter new additional information or to delete in replacement of a frequency filter and an information signal, since it is superimposed in the same time amount and the same frequency to a digital video signal.

[0085] Moreover, as mentioned above, the medium proper information by which spectrum diffusion was carried out is not eliminated, even if it carries out D/A conversion of the digital video signal with which it was superimposed on the additional information by which spectrum diffusion was carried out and changes into an analog signal, since it is superimposed in the same time amount and the same frequency to a digital video signal.

[0086] Thus, when recording the supplied digital video signal on a disk 100, by making into medium proper information the serial number currently recorded on TOC which is the information on a proper for every disk, the recording apparatus 10 of the gestalt of this 1st operation carries out spectrum diffusion, and is superimposed on the digital video signal S1 which records this. And the digital video signal S2 which superimposed this medium proper information by which spectrum diffusion was carried out is recorded on a disk 100.

[0087] That is, without degrading the digital video signal recorded on a disk 100, the recording apparatus 10 of the gestalt of this operation can carry out spectrum diffusion of the medium proper information, can superimpose it on a digital video signal, and can record this on a record medium so that the medium proper information on which the digital video signal was overlapped may not be altered.

[0088] And when an information signal is usually recorded on a passage using this recording device 10, it is made in agreement with the medium proper information on which a video signal is surely overlapped and by which spectrum diffusion was carried out, and the medium proper information on a record medium that this video signal is

recorded.

[0089] The regenerative apparatus 20 of [a regenerative apparatus 20], next the gestalt of this 1st operation is explained. Drawing 6 is a block diagram for explaining the regenerative apparatus 20 of the gestalt of this 1st operation. As shown in drawing 6, the regenerative apparatus 20 is equipped with the read-out section 21, the medium proper information read-out section 22, SS additional information detecting element 23, the timing generation section 24, the playback propriety distinction section 25, the regeneration section 26, the display information generating section 27, the LCD (liquid crystal display) driver 28, LCD29, the information signal elimination section 31, and the system-control section 200 that controls each part of this regenerative apparatus 20.

[0090] And a regenerative apparatus 20 can reproduce and output the digital video signal recorded on the disk 100 by the recording apparatus 10 mentioned above. That is, a regenerative apparatus 20 can reproduce the digital video signal with which it was superimposed on the medium proper information by which spectrum diffusion was carried out.

[0091] If initiation directions of playback of the video signal currently recorded on the disk 100 with which it was loaded by the user are given through the actuation key section 201 connected to the system-control section 200 of a regenerative apparatus 20, the system-control section 200 will control each part of this regenerative apparatus 20 to start regeneration.

[0092] The read-out section 21 of a regenerative apparatus 20 forms the digital playback video signal S12 from the signal S11 which reproduces the information signal currently recorded on the disk 100, and is acquired, and supplies this to SS additional information detecting element 23, the timing generation section 24, and the regeneration section 26.

[0093] The timing generation section 24 has the same configuration as the timing generation section 13 of the gestalt of the 1st operation mentioned above using drawing 2, and generates timing signal TM and the clock signal CLK which are used in each part of this regenerative apparatus 20. Therefore, the timing generation section 24 is explained as what has the configuration shown in drawing 2.

[0094] The criteria timing detecting element 131 of the timing generation section 24 extracts the synchronizing signal DK as a criteria timing signal from the digital video signal S12 supplied to this. This synchronizing signal DK is supplied to the PLL circuit 132 and the timing signal generation section 133.

[0095] The PLL circuit 132 generates the clock signal CLK which synchronized with

the digital video signal S12 based on the synchronizing signal DK from the criteria timing detecting element 131, and supplies this to the timing signal generation section 133 and each part, such as SS additional information detection 23 mentioned later.

[0096] The timing signal generation section 133 generates and outputs timing signal TM used in SS additional information read-out section 22, SS additional information generation section 25, etc., and various kinds of other timing signals based on the synchronizing signal DK from the criteria timing detecting element 131, and the PLL circuit 132 clock signal CLK.

[0097] In this regenerative apparatus 20, these timing signal TM and a clock signal CLK offer the same timing as timing signal TM and the clock signal CLK which were used with the recording device 10 mentioned above.

[0098] Thus, timing signal TM and the clock signal CLK which were generated in the timing generation section 24 are supplied to SS additional information detecting element 23, as shown in drawing 6.

[0099] SS additional information detecting element 23 performs the spectrum back diffusion of electrons, extracts the medium proper information B1 on which spectrum diffusion is carried out and the digital playback video signal S12 is overlapped, and supplies this to the playback propriety distinction section 25.

[0100] Namely, although SS additional information detecting element 23 is not illustrated, it is equipped with a PN code generator and the multiplication section. It is based on timing signal TM from the timing generation section 24 mentioned above, and a clock signal CLK. The same PN code train for the back diffusion of electrons of a sign pattern as the PN code train which is carrying out spectrum diffusion of the medium proper information B1 on which spectrum diffusion is carried out and the digital video signal S12 is overlapped. It has the function to extract the medium proper information B1 on which this is overlapped from the digital video-signal component S12, by also making generating timing in agreement, making it generate, and performing the spectrum back diffusion of electrons using the PN code train for these back diffusion of electrons.

[0101] On the other hand, the medium proper information read-out section 22 reads the serial number of the disk 100 currently recorded on TOC of a disk 100 as medium proper information like the medium proper information read-out section 17 of a recording apparatus 10, and supplies it to the playback propriety distinction section 25 as medium proper information B-2 of the record medium with which the digital video signal which reproduces this is recorded.

[0102] The playback propriety distinction section 25 distinguishes whether the

medium proper information B1 on which the digital video signal read from the disk 100 from SS additional information detecting element 23 was overlapped, and medium proper information B-2 of the disk 100 read by the medium proper information read-out section 22 are in agreement, forms the control signals CT1 and CT2 according to this distinction result, and supplies them to the regeneration section 26 and the display information generating section 27.

[0103] That is, when the medium proper information B1 from SS additional information detecting element 23 and medium proper information B-2 of the playback propriety distinction section 25 from the medium proper information read-out section 22 correspond, it judges that the video signal currently recorded on the disk 100 is reproduced proper by the usual approach, the control signal CT 1 made possible [playback] is generated, and this is supplied to the regeneration section 26.

[0104] When it is what the control signal CT 1 from the playback propriety distinction section 25 makes possible [playback], the regeneration section 26 processes decrypting the digital video signal S12 etc., forms a playback video signal, and outputs this.

[0105] moreover, when the medium proper information B1 from SS additional information detecting element 23 and medium proper information B-2 of the playback propriety distinction section 25 from the medium proper information read-out section 22 did not correspond and it distinguishes The video signal currently recorded on the disk 100 While judging that it is not what was reproduced proper, generating the control signal CT 1 made impossible [playback] and supplying this to the regeneration section 26, the digital video signal currently recorded on the record medium 100 The control signal CT 2 for displaying on LCD29 that it is unreproducible is formed, and this is supplied to the display information generating section 27.

[0106] In this case, it is made for the regeneration section 26 not to reproduce the digital video signal S12. And the video signal with which the display information generating section 27 which received supply of a control signal CT 2 is recorded on the record medium 100 may not have been reproduced by the usual duplicate approach, the message information which notifies that it is unreproducible is formed, and this is displayed on LCD29 through the LCD driver 28.

[0107] Moreover, it notifies that the medium proper information B1 from SS additional information detecting element 23 and medium proper information B-2 of the playback propriety distinction section 25 from the medium proper information read-out section 22 do not correspond in this case to the system-control section 200. In response to this notice, the system-control section 200 controls the information signal elimination

section 31, and eliminates the information signal currently recorded on the record medium 100.

[0108] In the gestalt of this 1st operation, the information signal elimination section 31 performs the so-called logical elimination which prevents from reading the video signal with which it was superimposed on different medium proper information from the medium proper information on a disk 100 by rewriting the directory information of a disk 100.

[0109] of course -- eliminating all of the information signals currently recorded on the disk 100 as initialize a disk 100 **** -- the medium proper information on a disk 100 -- things -- the video signal with which it was superimposed on medium proper information can be eliminated physically.

[0110] It explains that actuation of [actuation of a recording device 10 and a regenerative apparatus 20] next the recording device 10 mentioned above, and a regenerative apparatus 20 flows, referring to the flow chart of drawing 8 and drawing 9.

[0111] Drawing 8 is a flow chart for explaining the flow of actuation of a recording apparatus 10. The processing shown in this drawing 8 is started when the user of a recording apparatus 10 performs actuation which records the digital video signal inputted from the input terminal 11 of an information signal.

[0112] First, it judges whether a recording device 10 can extract the duplicate prevention control information added to this from the video signal supplied through the input terminal 11 (step S1), and the supplied video signal can reproduce it (step S2). In decision processing of step S2, when duplicate prevention control information is what shows the ban on a duplicate, this processing is ended, without performing a duplicate.

[0113] The extracted duplicate prevention control signal the information signal supplied by decision processing of step S2 Duplicate authorization, or when it is what shows that the duplicate to the 1st generation is good The serial number currently recorded on TOC of the disk 100 which is going to record the video signal is read as medium proper information (step S3), and spectrum diffusion of the read medium proper information is carried out (step S4).

[0114] And the video signal with which the medium proper information SB 1 by which spectrum diffusion was carried out was superimposed on the video signal recorded on a disk 100 (step S5), and it was superimposed on the medium proper information SB 1 by which spectrum diffusion was carried out is recorded on a disk 100.

[0115] Drawing 9 is a flow chart for explaining the flow of actuation of a regenerative

apparatus 20. The processing shown in this drawing 9 is started when the user of a regenerative apparatus 20 performs actuation of directing playback of the video signal currently recorded on the disk 100 with which the regenerative apparatus 20 loaded.

[0116] First, a regenerative apparatus 20 reads the serial number currently recorded on TOC of a disk 100 to this disk with which the video signal to reproduce is recorded as medium proper information B-2 (step S11). Next, it judges whether the medium proper information B1 on which it detected (step S12) and read medium proper information B-2 and a video signal were overlapped is in agreement by carrying out reverse spectrum diffusion of the medium proper information B1 on which spectrum diffusion is carried out and the video signal read from the disk is overlapped (step S13). [0117] In decision processing of step S13, when it judges that the medium proper information B1 and B-2 are in agreement, a video signal is regenerated and the video signal currently recorded on the disk 100 is reproduced (step S14).

[0118] The video signal reproduced by the disk when it was judged in decision processing of step S13 that the medium proper information B1 and B-2 are not in agreement is judged to be what is not what was reproduced by the usual approach, the video signal concerned is been made not to regenerate, and the video signal with which the disk is recorded displays the message which notifies that it is unreproducible on LCD. And in the gestalt of this 1st operation, the video signal with which it is superimposed on different medium proper information B1 from medium proper information B-2 of the disk 100 currently recorded on the disk 100 is eliminated (step S15).

[0119] Thus, it sets in the gestalt of this 1st operation. the above-mentioned -- as, when an individual user records information signals, such as a video signal to which the duplicate is permitted by the usual approach using the recording device 10 for the purpose of the object for individual treatment It is made in agreement [the medium proper information B1 on which the information signal recorded on the disk was overlapped, and having / this information signal or the disk recorded / medium proper information]. However, since the medium proper information on which the information signal recorded on the disk was overlapped, and the medium proper information on the record medium concerned of this information signal are not in agreement when the information signal recorded on the disk is not what was reproduced by the usual approach with the recording apparatus 10, in a regenerative apparatus 20, it is made not to be carried out in playback.

[0120] Even if it is the information signal with which the duplicate is permitted, when reproducing by the usual approach by this a sake [for a user's individual treatment],

normal playback is enabled and the unjust duplicate by the approach other than the usual approach can be prevented.

[0121] Moreover, the medium proper information on which an information signal is overlapped at the time of record of an information signal Without deteriorating an information signal, since spectrum diffusion is carried out and it is recorded on an information signal Moreover, without altering the medium proper information on which spectrum diffusion is carried out and the information signal is overlapped, or being removed, as the medium proper information on which it was superimposed proper and by which spectrum diffusion was carried out is taken out certainly and mentioned above, medium proper information can be collated.

[0122] In addition, in the gestalt of this 1st operation, although the message which notifies that it is unreproducible to LCD29 was displayed when the medium proper information on which the information signal recorded on the disk was overlapped, and the medium proper information on a disk that this information signal was recorded were not in agreement, it does not restrict to this.

[0123] For example, in order to report that playback of a video signal cannot be performed, LED (light emitting diode) and an LED driver are prepared, and since medium proper information is not in agreement, when the video signal which is an information signal is unreproducible, you may make it turn on or blink this LED.

[0124] Moreover, the signal for displaying the message which notifies that it changes and the video signal which it was going to reproduce cannot be reproduced is formed in the video signal which it was going to reproduce, and you may make it output to it using OSD (on-screen display).

[0125] Of course, since medium proper information is inharmonious, you may make it display the message which notifies that it is normally unreproducible on the image by the video signal which it was going to reproduce using a superimposition. In this case, since an image is hidden by displaying a message while being able to know something, normal playback of a video signal can be made not to do the image to which it was going to view and listen by displaying that a message hides more than one half of the image by the video signal which it was going to reproduce.

[0126] Moreover, when the medium proper information on which the information signal recorded on the disk was overlapped, and the medium proper information on a disk that this information signal was recorded are not in agreement, you may make it emit warning with voice.

[0127] moreover, the medium proper information on the disk 100 currently recorded on the disk 100 in the gestalt of this 1st operation -- things -- since it is not

reproduced, it is not necessary to make it not necessarily eliminate a video signal in this case, although the video signal with which it is superimposed on medium proper information was eliminated

[0128] [the gestalt of the 2nd operation] — in recording an information signal on a record medium so that it may mention later in detail, the equipment proper information on a proper is added to that recording device at an information signal, and it makes it record on a record medium in the gestalt of this 2nd operation as information relevant to the recording device which records As this equipment proper information, the serial number of that equipment is used, for example. Moreover, when the equipment proper information added to the information signal to reproduce when reproducing the information signal recorded on the record medium, and the equipment proper information which the regenerative apparatus which reproduces this information signal has are in agreement, the information signal currently recorded on the record medium is reproduced.

[0129] That is, in the gestalt of this 2nd operation, only in the record regenerative apparatus which recorded about the information signal, playback is made possible, and it is still severer than the gestalt of the 1st operation of the above-mentioned using medium proper information, and made to perform only reproduction of the information signal aiming at the object for individual treatment.

[0130] In addition, like the case of the gestalt of the 1st operation which mentioned above the recording device 30 explained below and the regenerative apparatus 40, through networks, such as the Internet, a recording device 30 is equivalent to the recording system of equipments, such as that personal computer, and a regenerative apparatus 40 is equivalent [it is equipments, such as a personal computer which can send and receive an information signal, and] to the reversion system of the equipment of equipments, such as that personal computer, in the gestalt of this 2nd operation.

[0131] Therefore, in the recording device 30 of the gestalt of this 2nd operation, and a regenerative apparatus 40, explanation is simplified using the same reference mark about the part which can be constituted like the recording device 10 of the gestalt of the 1st operation and regenerative apparatus 20 which were mentioned above. Moreover, the record medium 100 as well as [for example,] the case of the gestalt of the 1st operation is explained as that whose information signal set as the object of record and playback it is disks, such as CD-ROM and DVD, and is also the same digital video signal as the gestalt of the 1st operation of the above-mentioned.

[0132] [Recording apparatus 30] Drawing 9 is a block diagram for explaining the recording apparatus 30 of the gestalt of the 2nd operation. As shown in drawing 9, the

recording device 30 of the gestalt of this 2nd operation is equipped with the system controller 200 which controls the input terminal 11 of an information signal, the duplicate prevention control information detecting element 12, the timing generation section 13, SS additional information generation section 14, SS additional information superposition section 15, the write-in section 16, and each part of this recording device 10.

[0133] Thus, the recording device 30 of the gestalt of this 2nd operation is considered as the configuration which is not equipped with the medium proper information read-out section 17 with which the recording device 10 of the gestalt of the 1st operation of the above-mentioned was equipped.

[0134] Through the actuation key section 201 connected to the system controller 200, if initiation directions of record of a video signal are given by the user, a system controller 200 will control each part of a recording device 30 to start the record processing which records the supplied information signal on a disk 100.

[0135] And like the case of the recording device 10 of the gestalt of the 1st operation of the above-mentioned, it is transmitted through networks, such as the Internet, and the digital video signal S1 which the recording device 30 received is supplied to the duplicate prevention control information detecting element 12 of this recording device 30, the timing generation section 13, and SS additional information superposition section 15.

[0136] As mentioned above, the duplicate prevention control information detecting element 12 detects the duplicate prevention control information of the CGMS method added to the supplied digital video signal S1, and notifies the detected duplicate prevention control information to a system controller 200.

[0137] A system controller 200 controls each part not to record the digital video signal S1, when the duplicate prevention control information from the duplicate prevention control information detecting element 12 is what shows that a duplicate is forbidden, when the information from the duplicate prevention control information detecting element 12 is what permits a duplicate, controls each part of a recording apparatus 30, and is made to perform record to the record medium 100 of a digital video signal.

[0138] Moreover, the actuation key section 201 is connected, and also ROM202 and RAM203 are connected to the system controller 200. Information, such as a program performed in a system controller 200 and a serial number of the data used for various kinds of processings or this recording device 30, is memorized by ROM202. It is used as a working area that RAM203 holds a result in the middle of processing etc.

[0139] And the serial number of the recording device 30 currently recorded on ROM202 equipped with a system controller 200 is a number which is a number of a proper and does not overlap a recording device 30 with other recording devices etc. For this reason, in the gestalt of this 2nd operation, the manufacture parts number number memorized by this ROM202 is used as equipment proper information which is the information about equipment so that it may mention later.

[0140] In the gestalt of this 2nd operation, in being the signal which can reproduce the digital video signal S1 supplied to the recording apparatus 30, from ROM202, a system controller 200 reads the equipment proper information D1 on a proper to a recording apparatus 30, and supplies this equipment proper information D1 to SS additional information generation section 14.

[0141] As mentioned above using drawing 2, the timing generation section 13 detects a criteria timing signal from the supplied digital video signal S1, and generates timing signal TM and the clock signal CLK which are used in each part of the recording device 10 of the gestalt of this 1st operation based on the detected criteria timing signal.

[0142] That is, the timing generation section 13 forms timing signal TM and the clock signal CLK which synchronized with this synchronizing signal DK like the case of the gestalt of the 1st operation based on the synchronizing signal DK extracted from the digital video signal S1.

[0143] Timing signal TM is a peach used as a reset (initialization) signal which shows the timing for generating the PN code train which has the sign pattern which is used for spectrum diffusion, and which was decided beforehand from the head in SS additional information generation section 14. Moreover, a clock signal CLK is an object used as a signal which offers the generating timing of a PN code. Timing signal TM and the clock signal CLK which were generated in these timing generation section 13 are supplied to SS additional information generation section 14, as shown in drawing 9.

[0144] SS additional information generation section 14 generates SS equipment proper information SD 1 which is the spectrum diffusion signal of the equipment proper information D1 in response to supply of the equipment proper information D1, timing signal TM, and a clock signal CLK.

[0145] SS additional information generation section 14 is equipped with the PN code generating section 141 and the multiplication section 142 as mentioned above using drawing 3. And the PN code train PS to which timing signal TM was supplied and which was generated from the head for every timing synchronizing with the clock signal CLK It synchronizes with a clock signal CLK for every timing timing signal TM

indicates each bit of the equipment proper information D1 to be. Multiplication with equipment proper information train D1R which was decided beforehand and which was formed as outputted several clock minutes is performed, the spectrum diffusion signal (SS equipment proper information) SD 1 which is the equipment proper information by which spectrum diffusion was carried out is generated, and this is supplied to SS additional information superposition section 15.

[0146] SS additional information superposition section 15 forms the digital video signal S1 and the digital video signal S2 with which it was superimposed on the digital SS equipment proper information SD 1 in response to supply with the digital SS equipment proper information SD 1, writes this in, and supplies it to the section 16. The write-in section 16 changes this into the digital video signal for record suitable for record in response to supply of the digital video signal S2 with which it was superimposed on the digital SS additional information SD 1, and writes the digital video signal for this record in a record medium 100. The digital video signal with which it was superimposed on SS equipment proper information SD 1 which is the equipment proper information by which spectrum diffusion was carried out by this is recorded on a record medium 100.

[0147] Thus, when reproducing in order to use individually the information signal with which the duplicate is permitted, the recording device 30 of the gestalt of this 2nd operation is made to be recorded on a record medium, after spectrum diffusion is carried out and equipment proper information is overlapped on the information signal to reproduce.

[0148] The regenerative apparatus 40 of [a regenerative apparatus 40], next the gestalt of this 2nd operation is explained. Drawing 10 is a block diagram for explaining the regenerative apparatus 40 of the gestalt of this 2nd operation. As shown in drawing 10, the regenerative apparatus 40 is equipped with the read-out section 21, SS additional information detecting element 23, the timing generation section 24, the playback propriety distinction section 25, the regeneration section 26, the display information generating section 27, the LCD (liquid crystal display) driver 28, LCD29, and the system controller 200 that controls each part of this regenerative apparatus 40.

[0149] That is, the regenerative apparatus 40 of the gestalt of this 2nd operation is not equipped with the medium proper information read-out means 22 with which the regenerative apparatus 20 of the gestalt of the 1st operation was equipped. And a regenerative apparatus 40 can reproduce and output the digital video signal recorded on the disk 100 by the recording apparatus 30 mentioned above. That is, a

regenerative apparatus 40 can reproduce the digital video signal with which it was superimposed on the equipment proper information by which spectrum diffusion was carried out.

[0150] And the equipment proper information on which the digital video signal S12 read from the disk 100 is overlapped is detected like the case of the regenerative apparatus 20 of the gestalt of the 1st operation mentioned above by performing the spectrum back diffusion of electrons by SS additional information detecting element 23 in a regenerative apparatus 40.

[0151] That is, generating timing also makes in agreement the same PN-code train for the back diffusion of electrons of a sign pattern as the PN-code train which is generated in the timing generation section 24 and which is carrying out spectrum diffusion of the equipment proper information D1 on which spectrum diffusion is carried out and the digital video signal S12 is overlapped in response to supply of timing signal TM which synchronizes with the synchronizing signal DS detected from the digital video signal 12, and a clock signal CLK, and SS additional-information detecting element 23 generates it.

[0152] And SS additional information detecting element 23 detects the medium proper information D1 on which this is overlapped from the digital video-signal component S12 by performing the spectrum back diffusion of electrons using the PN code train for these back diffusion of electrons. The equipment proper information D1 detected by SS additional information detecting element 23 is supplied to the playback propriety distinction section 25.

[0153] On the other hand, the system-control section 200 reads the cleaning number of a regenerative apparatus 40 from ROM202 with which the system-control section 200 is equipped as equipment proper information D2, and supplies this to the playback propriety distinction section 25.

[0154] The playback propriety distinction section 25 distinguishes whether the equipment proper information D1 on which the digital video signal S12 read from the disk 100 from SS additional information detecting element 23 was overlapped, and the equipment proper information D2 read from ROM202 by the system-control section 200 are in agreement, forms the control signals CT1 and CT2 according to this distinction result, and supplies them to the regeneration section 26 and the display information generating section 27.

[0155] that is, when the equipment proper information D1 from SS additional information detecting element 23 and the equipment proper information D2 from the system-control section 200 are in agreement, the playback propriety distinction

section 25 The video signal currently recorded on the disk 100 judges that it is reproduced in the information signal record regenerative apparatus equipped with the recording device 30 of the gestalt of this 2nd operation, and the regenerative apparatus 40, generates the control signal CT 1 made possible [playback], and supplies this to the regeneration section 26.

[0156] When it is what the control signal CT 1 from the playback propriety distinction section 25 makes possible [playback], the regeneration section 26 processes decrypting the digital video signal S12 etc., forms a playback video signal, and outputs this.

[0157] moreover, when the medium proper information B1 from SS additional information detecting element 23 and medium proper information B-2 of the playback propriety distinction section 25 from the medium proper information read-out section 22 did not correspond and it distinguishes The video signal currently recorded on the disk 100 While judging that it is not what was recorded with the record regenerative apparatus equipped with the recording device 30 of the gestalt of this operation, and a regenerative apparatus 40, generating the control signal CT 1 made impossible [playback] and supplying this to the regeneration section 26 The digital video signal currently recorded on the record medium 100 forms the control signal CT 2 for displaying on LCD29 that it is unreproducible, and supplies this to the display information generating section 27.

[0158] In this case, it is made for the regeneration section 26 to have the digital video signal S12 reproduced. And the video signal currently recorded on the record medium 100 may be reproduced by other recording devices, the display information generating section 27 which received supply of a control signal CT 2 forms the message information for notifying not being reproduced, and this is displayed on LCD29 through the LCD driver 28.

[0159] Thus, in the gestalt of this 2nd operation, it superimposes on the video signal which carries out spectrum diffusion and records the equipment proper information on a recording device at the time of record of a video signal. And since the information signal recorded on the disk is unreproducible if the equipment proper information on the regenerative apparatus reproduced at the time of playback of a video signal and the equipment proper information on which spectrum diffusion is carried out and the video signal is overlapped are not in agreement, playback of an information signal is enabled only with the record regenerative apparatus which recorded the video signal.

[0160] Although an individual user is able to reproduce and use an information signal for the purpose of the object for individual treatment since the information signal

recorded on the record medium using the record regenerative apparatus equipped with the recording device 30 which he owns, and the regenerative apparatus 40 by this is reproducible with the recorded record regenerative apparatus It can be made not to perform playback of the information signal by which the record medium was unfairly reproduced with other recording devices etc.

[0161] Therefore, it can have the purposes, such as lending and passing many and unspecified things, and the thing of reproducing an information signal unfairly can prevent effectively.

[0162] in addition, also in the gestalt of this 2nd operation, like the case of the gestalt of the 1st operation mentioned above LED (light emitting diode) and the LED driver for reporting that playback of a video signal cannot be performed are prepared, may make it report, and You may make it notify that a video signal is unreproducible by displaying on a display OSD (on-screen display) and the information outputted from a regenerative apparatus 40 using a superimposition. Moreover, you may make it emit warning with voice.

[0163] [the gestalt of the 3rd operation] — for example, IC card reader is prepared in a recording device and a regenerative apparatus, and it changes into the equipment proper information currently recorded on IC card memory that the information on Equipment ID, User ID, a record medium ID, etc. was mentioned above as information relevant to equipments, such as a recording device and a regenerative apparatus, for example, and is made to use in the gestalt of this 3rd operation That is, it is going to make it use like the equipment proper information read from ROM202 of the gestalt of the 2nd operation which mentioned above the information on the IC card memory with which the card reader prepared in the recording device and the regenerative apparatus was loaded.

[0164] Like the case of the gestalt of the 1st which mentioned above the recording device 50 explained below and the regenerative apparatus 60, and the 2nd operation, through networks, such as the Internet, it is equipments, such as a personal computer which can send and receive an information signal, and a recording device 50 is equivalent to the recording system of equipments, such as that personal computer, and a regenerative apparatus 60 is equivalent to the reversion system of the equipment of equipments, such as that personal computer, in the gestalt of this 3rd operation.

[0165] Therefore, in the recording device 50 of the gestalt of this 3rd operation, and a regenerative apparatus 60, explanation is simplified using the same reference mark about the part constituted like the 1st and the recording devices 10 and 30 of the

gestalt of the 2nd operation which were mentioned above, and regenerative apparatus 20 and 40. Moreover, the record medium 100 as well as [for example,] the case of the gestalt of the 1st operation is explained as that whose information signal set as the object of record and playback it is disks, such as CD-ROM and DVD, and is also the same digital video signal as the gestalt of the 1st operation of the above-mentioned.

[0166] [Recording apparatus 50] Drawing 11 is a block diagram for explaining the recording apparatus 50 of the gestalt of the 3rd operation. As shown in drawing 11 , while the recording device 50 of the gestalt of this 3rd operation is equipped with the system controller 200 which controls the input terminal 11 of an information signal, the duplicate prevention control information detecting element 12, the timing generation section 13, SS additional information generation section 14, SS additional information superposition section 15, the write-in section 16, and each part of this recording device 10, the card reader 204 is connected to the system-control section 200.

[0167] Thus, as for the recording device 50 of the gestalt of this 3rd operation, a card reader 204 is formed to the recording device 30 of the gestalt of the 2nd operation of the above-mentioned. This card reader 204 is loaded with the IC card memory 300 ID information which it is sold with this recording device 50, for example, can be used as identification information of the user of the recording device 50 which is a purchaser was remembered to be, and it is used for it.

[0168] And a card reader 204 is loaded with the IC card memory 300 on which ID information is recorded, and if initiation directions of record of a video signal are given by the user through the actuation key section 201 connected to the system controller 200, a system controller 200 will control each part of a recording device 50 to start the record processing which records the digital video-signal information signal S1 which is receiving supply on a disk 100.

[0169] And like the case of the recording devices 10 and 30 of the above-mentioned 1st and the gestalt of the 2nd operation, it is transmitted through networks, such as the Internet, and the digital video signal S1 which the recording device 50 received is supplied to the duplicate prevention control information detecting element 12 of this recording device 30, the timing generation section 13, and SS additional information superposition section 15.

[0170] And in the duplicate prevention control information detecting element 12, the duplicate prevention control information added to the digital video signal S1 is detected, and the result is notified to the system-control section 200.

[0171] A system controller 200 controls each part of a recording device 50 not to

perform record of the digital video signal S1, when the duplicate prevention control information detected by the duplicate prevention control-information detecting element 12 is what shows that a duplicate is forbidden, and when the information from the duplicate prevention control-information detecting element 12 is what permits a duplicate, it controls each part of a recording device 50, and it is made it carrying out record on the disk 100 of the digital video signal S1.

[0172] And in the gestalt of this 3rd operation, in being the signal which can reproduce the digital video signal S1 supplied to the recording apparatus 50, a system controller 200 controls a card reader 204, from the IC card memory 300 with which the card reader 204 is loaded, reads the ID information U1 and supplies this ID information U1 to SS additional information generation section 14.

[0173] As mentioned above using drawing 2, the timing generation section 13 detects a criteria timing signal from the supplied digital video signal S1, and generates timing signal TM and the clock signal CLK which are used in each part of the recording device 10 of the gestalt of this 1st operation based on the detected criteria timing signal.

[0174] namely, the timing generation section 13 -- the above-mentioned -- as -- based on the synchronizing signal DK extracted from the digital video signal S1, timing signal TM and the clock signal CLK which synchronized with this synchronizing signal DK are formed.

[0175] SS additional information generation section 14 generates the SSID information SU1 which is the spectrum diffusion signal of the ID information U1 in response to supply of the ID information U1, timing signal TM, and a clock signal CLK.

[0176] SS additional information generation section 14 is equipped with the PN code generating section 141 and the multiplication section 142 as mentioned above using drawing 3. And the PN code train PS to which timing signal TM was supplied and which was generated from the head for every timing synchronizing with the clock signal CLK It synchronizes with a clock signal CLK for every timing timing signal TM indicates each bit of the ID information U1 to be. Multiplication with ID information train U1R which was decided beforehand and which was formed as outputted several clock minutes is performed, the spectrum diffusion signal (SSID information) SU1 which is ID information by which spectrum diffusion was carried out is generated, and this is supplied to SS additional information superposition section 15.

[0177] By superimposing the digital SSID information SU1 on the digital video signal S1, SS additional information superposition section 15 forms the digital video signal S2, writes this in, and supplies it to the section 16. The write-in section 16 changes this

into the digital video signal for record suitable for record in response to supply of the digital video signal S2 with which it was superimposed on digital SSID information, and writes the digital video signal for this record in a record medium 100. The digital video signal with which it was superimposed on the SSID information SU1 which is ID information by which spectrum diffusion was carried out by this is recorded on a record medium 100.

[0178] Thus, when recording the supplied digital video signal on a disk 100, the recording apparatus 30 of the gestalt of this 3rd operation reads ID information from the IC card memory 300 with which the card reader 204 was loaded, and records the digital video signal S2 which was overlapped on the digital video signal S1 which carries out spectrum diffusion and records this, and superimposed a user's identification information by which spectrum diffusion was carried out on a disk 100.

[0179] The regenerative apparatus 60 of [a regenerative apparatus 60], next the gestalt of this 3rd operation is explained. Drawing 12 is a block diagram for explaining the regenerative apparatus 60 of the gestalt of this 3rd operation. As shown in drawing 12, while a regenerative apparatus 60 is equipped with the read-out section 21, SS additional information detecting element 23, the timing generation section 24, the playback propriety distinction section 25, the regeneration section 26, the display information generating section 27, the LCD (liquid crystal display) driver 28, LCD29, and the system controller 200 that controls each part of this regenerative apparatus 40, the card reader 204 is connected to the system-control section 200.

[0180] Thus, as for the regenerative apparatus 60 of the gestalt of this 3rd operation, a card reader 204 is formed to the regenerative apparatus 40 of the gestalt of the 2nd operation. This card reader 204 is loaded with the IC card memory 300 ID information was remembered to be like the above-mentioned recording device 50, and it is used for it.

[0181] And also in the regenerative apparatus 60 of the gestalt of this 3rd operation, like the case of the regenerative apparatus 20 and 40 of the above-mentioned 1st and the gestalt of the 2nd operation, the spectrum back diffusion of electrons is performed in SS additional information detecting element 23, and the ID information U1 on which spectrum diffusion is carried out and the digital video signal S12 is overlapped is detected. The ID information U1 detected by SS additional information detecting element 23 is supplied to the playback propriety distinction section 25.

[0182] On the other hand, the system-control section 200 controls the card reader 204 with which the system-control section 200 is equipped, reads the ID information U2 from the IC card memory 300 with which this is loaded, and supplies this to the

playback propriety distinction section 25.

[0183] The ID information U1 superimposed on the playback propriety distinction section 25 by the digital video signal read from the disk 100 from SS additional information detecting element 23, It distinguishes whether the ID information U2 read from the IC card memory 300 with which the card reader 204 is loaded by control of the system-control section 200 is in agreement. The control signals CT1 and CT2 according to this distinction result are formed, and the regeneration section 26 and the display information generating section 27 are supplied.

[0184] That is, when the ID information U1 from SS additional information detecting element 23 and the ID information U2 from the system-control section 200 are in agreement, the playback propriety distinction section 25 judges that playback is directed by the owner of the IC card memory used at the time of record, generates the control signal CT 1 made possible [playback], and supplies this to the regeneration section 26.

[0185] When it is what the control signal CT 1 from the playback propriety distinction section 25 makes possible [playback], the regeneration section 26 processes decrypting the digital video signal S12 etc., forms a playback video signal, and outputs this.

[0186] moreover, when the ID information U1 from SS additional information detecting element 23 and the ID information U2 of the playback propriety distinction section 25 from the system-control section 200 did not correspond and it distinguishes While judging that they are the playback directions from those who are not owners of the IC card memory used at the time of record, generating the control signal CT 1 made impossible [playback] and supplying this to the regeneration section 26 The digital video signal currently recorded on the record medium 100 forms the control signal CT 2 for displaying on LCD29 that it is unreproducible, and supplies this to the display information generating section 27.

[0187] In this case, it is made for the regeneration section 26 not to reproduce the digital video signal S12. And the video signal currently recorded on the record medium 100 may be reproduced by other users, the display information generating section 27 which received supply of a control signal CT 2 forms the message information for notifying not being reproduced, and this is displayed on LCD29 through the LCD driver 28.

[0188] Thus, in the gestalt of this 3rd operation, the ID information U1 currently recorded on the IC card memory 300 at the time of record of a video signal is read, and it superimposes on the video signal which carries out spectrum diffusion and

records this. And since it is unreproducible if the ID information U2 read from the IC card memory 300 with which the card reader 204 of the regenerative apparatus reproduced at the time of playback of a video signal was loaded, and the ID information U2 on which spectrum diffusion is carried out and the video signal is overlapped are not in agreement, only when the same IC card memory 300 is used in the time of record and playback, it is supposed that it is refreshable.

[0189] Thereby, the information signal recorded on the record medium in the recording device 50 which he owns using the IC card memory 300 is reproducible by loading with the IC card memory 300 and making it reproduce also in other regenerative apparatus.

[0190] therefore, when an information signal is recorded using the recording device 50 of the gestalt of this 3rd operation It becomes reproducible by loading the regenerative apparatus 60 of the gestalt of this 3rd operation with the IC card memory 300 used at the time of record. Since the information signal recorded on the record medium is reproducible if it is the regenerative apparatus equipped with a card reader 204 by using with a recording device 50 by making into a pair the record medium and the IC card memory 300 which recorded the information signal, It becomes possible to build the record regeneration system of an information signal which gave proper flexibility -- the information signal recorded on the record medium at the house is reproducible elsewhere.

[0191] Also in this case, at the time of playback, although an individual user is able to reproduce and use an information signal for the purpose of the object for individual treatment, since IC card memory is needed, an information signal can be reproduced unfairly and a thing, such as lending and passing many and unspecified things, can be prevented effectively.

[0192] in addition, also in the gestalt of this 3rd operation, like the case of the gestalt of the 1st and the 2nd operation mentioned above LED (light emitting diode) and the LED driver for reporting that playback of a video signal cannot be performed are prepared, may make it report, and You may make it notify that a video signal is unreproducible by displaying on a display OSD (on-screen display) and the information outputted from a regenerative apparatus 40 using a superimposition. Moreover, you may make it emit warning with voice.

[0193] Moreover, in the gestalt of the 1st, the 2nd, and the 3rd operation mentioned above, spectrum diffusion is carried out and additional information, such as medium proper information added to the video signal which is an information signal, equipment proper information, and ID information, was superimposed.

[0194] However, the so-called digital-watermarking information (watermark information) according to the additional information superimposed on an information signal is formed, and you may make it superimpose on an information signal not by the thing to restrict to this but by other approaches.

[0195] [the gestalt of the 4th operation] -- in the gestalt of this 4th operation, the information signal with which medium proper information was enciphered, it added to the information signal, and this enciphered medium proper information was added is recorded on a record medium. And the medium proper information which is added to the information signal to reproduce when reproducing the information signal recorded on the record medium and which is enciphered is decrypted, and it is made to reproduce when this decrypted medium proper information and the medium proper information on a record medium that this information signal is recorded are in agreement.

[0196] Like the case of the gestalt of the 1st operation which mentioned above, through networks, such as the Internet, the recording device 70 which also explains the gestalt smell of this 4th operation below, and regenerative apparatus 80 are equipments, such as a personal computer which can send and receive an information signal, and are **. For this reason, in the recording device 70 of the gestalt of this 4th operation, and a regenerative apparatus 80, explanation is simplified using the same reference mark about the part which can be constituted like the recording device of the gestalt of operation mentioned above, and a regenerative apparatus.

[0197] Moreover, the record medium 100 as well as [for example,] the case of the gestalt of the 1st operation is explained as that whose information signal set as the object of record and playback it is disks, such as CD-ROM and DVD, and is also the same digital video signal as the gestalt of the above-mentioned operation.

[0198] [Recording apparatus 70] Drawing 13 is a block diagram for explaining the recording apparatus 70 of the gestalt of the 4th operation. As shown in drawing 13, the recording device 70 of the gestalt of this 4th operation is equipped with the input terminal 11 of an information signal, the duplicate prevention control information detecting element 12, the write-in section 16, the medium proper information read-out section 17, the encryption section 18, and the system-control section 200 that controls each part of this recording device 70.

[0199] Through the actuation key section 201 connected to the system-control section 200, if initiation directions of record of a video signal are given by the user, the system-control section 200 will control each part of a recording device 70 to start the record processing which records the supplied information signal on a disk 100.

[0200] And like the case of the recording device of the gestalt of the above-mentioned operation, it is transmitted through networks, such as the Internet, and the digital video signal S1 which the recording device 70 received is supplied to the duplicate prevention control information detecting element 12 and the write-in section 16 of this recording device 70.

[0201] The duplicate prevention control information detecting element 12 detects the duplicate prevention control information of the CGMS method added to the digital video signal S1, and notifies the detected duplicate prevention control information to the system-control section 200.

[0202] The system-control section 200 controls recording device 70 each part for the business which does not record the digital video signal S1 when the duplicate prevention control information from the duplicate prevention control information detecting element 12 is what shows that a duplicate is forbidden, when the information from the duplicate prevention control-information detecting element 12 is what permits a duplicate, controls each part of a recording device 70, and is made to perform record to the record medium 100 of a digital video signal.

[0203] And when a duplicate is permitted to the digital video signal S1, the medium proper information read-out section 17 reads the serial number currently recorded, for example on TOC of a disk 100 from a disk 100 as medium proper information B1, and supplies this to the encryption section 18.

[0204] The encryption section 18 enciphers the medium proper information B1 according to the procedure for which it opted beforehand, writes in the enciphered medium proper information and supplies it to the section 16. The write-in section 16 adds and records the enciphered medium proper information on the digital video signal recorded on a disk 100 in the gestalt of this operation. The digital video signal with which the enciphered medium proper information was added by this is recorded on a record medium 100.

[0205] Thus, when recording the supplied digital video signal on a disk 100, the recording apparatus 70 of the gestalt of this 4th operation enciphers the medium proper information on a disk 100, and adds and records it on the digital video signal which records this on a disk 100.

[0206] The regenerative apparatus 80 of [a regenerative apparatus 80], next the gestalt of this 4th operation is explained. Drawing 14 is a block diagram for explaining the regenerative apparatus 80 of the gestalt of this 4th operation. As shown in drawing 14, the regenerative apparatus 80 is equipped with the read-out section 21, the medium proper information read-out section 22, the playback propriety distinction

section 25, the regeneration section 26, the display information generating section 27, the LCD (liquid crystal display) driver 28, LCD29, the medium proper information decryption section 32, and the system-control section 200 that controls each part of this regenerative apparatus 80.

[0207] Thus, the regenerative apparatus 80 of the gestalt of this 4th operation can reproduce the video signal with which the enciphered medium proper information was added in the recording device 70 mentioned above by having the medium proper information decryption section 32.

[0208] And in the regenerative apparatus 40 of the gestalt of this 4th operation, the digital video signal S12 from the read-out section 21 is supplied to the regeneration section 26 and the medium proper information decryption section 32.

[0209] In the medium proper information decryption section 32, according to the technique of the encryption used in the recording apparatus 70, the enciphered medium proper information B1 which is added to the digital video signal S12 is decrypted, and the decrypted medium proper information B1 is supplied to the playback propriety distinction section 25.

[0210] On the other hand, the medium proper information read-out section 22 reads the serial number of a disk 100 to the disk 100 as medium proper information B-2, and supplies this medium proper information B-2 to the playback propriety distinction section 25.

[0211] The playback propriety distinction section 25 distinguishes whether the medium proper information B1 from the decryption section 32 and medium proper information B-2 from the medium proper information read-out section 22 are in agreement. And as well as the case of the gestalt of the 1st operation when the medium proper information B1 from the medium proper information decryption section 32 and medium proper information B-2 from the medium proper information read-out section 22 are in agreement, the playback propriety distinction section 25 judges that the video signal currently recorded on the disk 100 is reproduced proper, generates the control signal CT 1 made possible [playback], and supplies this to the regeneration section 26.

[0212] When it is what the control signal CT 1 from the playback propriety distinction section 25 makes possible [playback], the regeneration section 26 processes decrypting the digital video signal S12 etc., forms a playback video signal, and outputs this.

[0213] moreover, when it judges that the medium proper information B1 from the decryption section 32 and medium proper information B-2 of the playback propriety

distinction section 25 from the medium proper information read-out section 22 do not correspond. The video signal currently recorded on the disk 100. While judging that it is not what was reproduced properly by the above-mentioned recording device 70 etc., generating the control signal CT 1 made impossible [playback] and supplying this to the regeneration section 26. The digital video signal currently recorded on the record medium 100 forms the control signal CT 2 for displaying on LCD29 that it is unreproducible, and supplies this to the display information generating section 27.

[0214] In this case, the regeneration section 26 is carried out as [reproduce / the digital video signal S12]. And the display information generating section 27 which received supply of a control signal CT 2 forms the message information for notifying that the video signal currently recorded on the record medium 100 is unreproducible, and this is displayed on LCD29 through the LCD driver 28.

[0215] Thus, in the case of the gestalt of this 4th operation, the medium proper information on a disk that a video signal is recorded at the time of record is enciphered, and it is added to the video signal which this enciphered medium proper information records, and is recorded by the record medium.

[0216] And the enciphered medium proper information which is added to the video signal considered as playback use at the time of playback is decrypted, and it is made to be reproduced only when this decrypted medium proper information and the medium proper information on a disk that the video signal which it is going to reproduce was recorded are in agreement.

[0217] In this case, since it is enciphered, the medium proper information added to the recorded video signal can be made not to do an alteration etc. easily.

[0218] And as mentioned above in the gestalt of the 1st operation, it also sets in the gestalt of this 4th operation. When an individual user records the video signal with which the duplicate is permitted using the recording device 70 for the purpose of the object for individual treatment. It is made in agreement [the medium proper information on which the information signal recorded on a disk was overlapped, and the medium proper information on the disk concerned of this information signal]. In not being what was reproduced using the usual approach by the recording apparatus 70, it makes it not in agreement [the medium proper information on which the information signal recorded on the disk was overlapped, and the medium proper information on the record medium concerned of this information signal].

[0219] Thereby, in a regenerative apparatus 80, it can be made not to perform playback of those other than the video signal usually reproduced at the passage using the recording device 70, and it can prevent an unjust duplicate.

[0220] In addition, in the gestalt of this 4th operation, although medium proper information was used, ID information recorded on the gestalt of the 2nd and the 3rd operation mentioned above by equipment proper information and IC card memory like is enciphered, and it can add to the video signal recorded on a disk.

[0221] In this case, what is necessary is just to decrypt the enciphered equipment proper information and a user's identification information in a regenerative apparatus. Moreover, what is necessary is just to prepare a card reader in a recording device 70 and a regenerative apparatus 80, in using a user's identification information recorded on IC card memory.

[0222] moreover, also in the gestalt of this 4th operation, like the case of the gestalt of operation mentioned above LED (light emitting diode) and the LED driver for reporting that playback of a video signal cannot be performed are prepared, may make it report, and You may make it notify that a video signal is unreproducible by displaying on a display OSD (on-screen display) and the information outputted from a regenerative apparatus 40 using a superimposition. Moreover, you may make it emit warning with voice.

[0223] the gestalt of the 1st of the [modification] above-mentioned, the 2nd, the 3rd, and the 4th operation — setting — carrying out spectrum diffusion of medium proper information, equipment proper information, the ID information, etc. **** — enciphering — an information signal — superposition — or it was made to add. However, it does not restrict to this.

[0224] For example, in recording a video signal on a record medium, the additional information added to the video signal to record is generated for example, based on medium proper information, this generated additional information is added to an image regenerative signal, and it records on record media, such as a disk. And in reproducing the video signal which carried out in this way and was recorded on the record medium, based on the medium proper information acquired when reproducing a video signal, it detects the additional information added to the video signal.

[0225] that is, when the medium proper information acquired at the time of record differs from the medium proper information acquired at the time of playback. By preventing from detecting the additional information which was generated and was added from the information signal which it is going to reproduce based on medium proper information at the time of record, only when additional information is detected from the information signal which it is going to reproduce at the time of playback, an information signal is reproduced.

[0226] Thus, it uses as a creation key of the additional information which adds the

medium proper information acquired at the time of record at the time of record of a video signal to a video signal, and can use as a detection key of the additional information added to the video signal which is going to reproduce the medium proper information acquired at the time of playback at the time of playback of a video signal. [0227] For example, although medium proper information was enciphered, additional information is generated based on medium proper information, and you may make it add to the video signal which was mentioned above and which records this generated additional information in the gestalt of the 4th operation.

[0228] That is, in the encryption section 18 of the recording device 70 shown in drawing 13 , additional information is generated by enciphering, using the medium proper information B1 from the medium proper information read-out section 17 as a cryptographic key. And the video signal which wrote in this generated additional information, supplied the section 16, added to the video signal recorded on a disk 100, and added additional information is recorded on a disk 100.

[0229] In the regenerative apparatus 80 shown in drawing 14 which, on the other hand, reproduces the video signal recorded on the disk 100 in the recording apparatus 70, medium proper information B-2 from the medium proper information read-out section 22 is supplied to the medium proper information decryption section 32. And in this medium proper information decryption section 32, by decrypting using medium proper information B-2 as a decryption key, detection **** processing is performed for the additional information added to the video signal S12, and the result of detection processing is notified to the playback propriety distinction section 25.

[0230] And in the playback propriety distinction section 25, when the regeneration section 26 is controlled to reproduce a video signal when additional information is detected based on the detection result from the medium proper information decryption section 32 and additional information is not detected, the regeneration section 26 is controlled not to reproduce a video signal.

[0231] Also in this case, when additional information is not detected but it makes it not reproduce a video signal, the message which notifies that a video signal is not reproduced is displayed, or sound emission of the beep sound can be carried out. Moreover, it is easy to be natural even if it eliminates the video signal currently recorded on the disk at this time.

[0232] Moreover, although the case where medium proper information was used was explained to the example, it can consider as the generation key for generating the additional information which adds equipment proper information, ID information, etc. to a video signal, and the detection key of the additional information added to the video

signal here.

[0233] Thus, information smell at the time of record and concerning [**] record media, such as medium proper information, and information relevant to equipments, such as equipment proper information, Or based on ID information recorded on IC card memory, generate additional information, add this additional information to a video signal, record on a record medium, and it sets at the time of playback. The information about record media, such as medium proper information, the information relevant to equipments, such as equipment proper information, or the additional information added to the video signal based on ID information recorded on IC card memory can be detected.

[0234] In addition, the same information signal elimination section as the regenerative apparatus 20 of the gestalt of the operation of ** to the regenerative apparatus 40, 60, and 80 of the gestalt of the 2nd, the 3rd, and the 4th operation mentioned above is prepared, and you may make it eliminate the information signal reproduced unfairly.

[0235] Moreover, when it constitutes the recording device 10 and the record regenerative apparatus which consists of a regenerative apparatus 20 mentioned above, the medium proper information read-out sections 17 and 22 can be **(ed) like this so that the recording device section and the regenerative-apparatus section may use in common in one circuit. In similarly constituting the record regenerative apparatus which consists of a recording device 50 and a regenerative apparatus 60, it shares a card reader 204 in the recording device section and the regenerative-apparatus section.

[0236] In addition, although the information signal set and reproduced [record and] to each of the gestalt of operation mentioned above was explained as what is a video signal, it cannot be restricted to a video signal and can apply this invention about a sound signal or various kinds of information signals of program data and others. Moreover, an information signal is not restricted to a digital signal, and even if it is an analog signal, it can apply this invention.

[0237] Moreover, although the recording device and the regenerative apparatus were explained to the gestalt of the above-mentioned operation in each as what is equipments, such as a personal computer, it cannot restrict to this and this invention can be applied to various kinds of recording devices, such as a record regenerative apparatus of DVD, and VTR, a tape recorder, a regenerative apparatus, and a record regenerative apparatus.

[0238] Moreover, a record medium can also use various kinds of record media, such as the small magneto-optic disk and small optical disk which do not restrict to disks,

such as CD-ROM and DVD, and are called MD (mini disc), a magnetic tape, and a magnetic disk.

[0239] Moreover, in the gestalt of the 1st operation, the serial number which was mentioned above and which is written in TOC of a disk 100 was used as medium proper information. However, although a record medium is used in the condition of having been stored in the case, like MD, a video tape, and a FIROPPII disk for example, there are some by which the memory which memorizes the information about the information about the record medium and the information currently recorded by the record medium is prepared in the case which has contained the record medium in inside.

[0240] Thus, when the memory which memorizes the information about a record medium to the case which has contained the record medium is prepared, of course, the information memorized by this memory can also perform making it use as information about a record medium.

[0241]

[Effect of the Invention] As explained above, since it can avoid reproducing, according to invention of claim 1, the information signal which could reproduce the information signal reproduced by the usual approach satisfactory at all, and was usually reproduced by the approach of an except can prevent the unjust duplicate of information signals other than the duplicate aiming at the object for individual treatment.

[0242] Moreover, the medium proper information as additional information added to an information signal can be prevented from altering medium proper information easily according to invention of claim 2, without medium proper information degrading an information signal, since spectrum diffusion is carried out and an information signal is overlapped.

[0243] Moreover, according to invention of claim 3, by various kinds of approaches, it can add to an information signal by the ability making medium proper information into the so-called digital-watermarking information (watermark), and the digital-watermarking information added to the information signal can be detected and used further. Moreover, it can avoid altering medium proper information easily, without medium proper information degrading an information signal, since medium proper information is made into the signal of minute level.

[0244] Moreover, since according to invention of claim 4 it is enciphered and medium proper information is superimposed by the information signal, it can avoid performing easily the thing of altering unjustly the medium proper information on which the

information signal was overlapped.

[0245] Moreover, while being able to avoid using the information signal reproduced unfairly according to invention of claim 5, the unjust duplicate of an information signal itself can be prevented.

[0246] Moreover, since the medium proper information which is superimposed by the information signal and added to it differs from the medium proper information on a record medium that this information signal is recorded, when according to invention of claim 6 it can know that an information signal will not be reproduced and an information signal is not reproduced, it can avoid mistaking for failure of the regenerative-apparatus section etc.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a block diagram for explaining the gestalt of 1 operation of the information signal recording apparatus by this invention.

[Drawing 2] It is a block diagram for explaining the timing generation section of the recording apparatus of drawing 1 .

[Drawing 3] It is a block diagram for explaining SS additional information generation section of the recording apparatus of drawing 1 .

[Drawing 4] It is a block diagram for explaining an example of a part of PN code generating sections of drawing 3 .

[Drawing 5] It is drawing having shown the relation between SS additional information

and an information signal by the spectrum.

[Drawing 6] It is a block diagram for explaining the gestalt of 1 operation of the information signal regenerative apparatus by this invention.

[Drawing 7] It is a flow chart for explaining the flow of actuation of the recording apparatus shown in drawing 1 .

[Drawing 8] It is a flow chart for explaining the flow of actuation of the regenerative apparatus shown in drawing 6 .

[Drawing 9] It is a block diagram for explaining the gestalt of other operations of the information signal recording apparatus by this invention (when using equipment proper information).

[Drawing 10] It is a block diagram for explaining the gestalt of other operations of the information signal regenerative apparatus by this invention (when using equipment proper information).

[Drawing 11] It is a block diagram for explaining the gestalt of other operations of the information signal recording apparatus by this invention (when using IC card memory).

[Drawing 12] It is a block diagram for explaining the gestalt of other operations of the information signal regenerative apparatus by this invention (when using IC card memory).

[Drawing 13] It is a block diagram for explaining the gestalt of other operations of the information signal recording apparatus by this invention (when enciphering medium proper information).

[Drawing 14] It is a block diagram for explaining the gestalt of other operations of the information signal regenerative apparatus by this invention (when medium proper information being enciphered).

[Description of Notations]

10 30 — 50 A recording device, 70 — 20 A recording device, 40 — Regenerative apparatus, 60 80 — A regenerative apparatus, 11 — The input terminal of an information signal, 12 — Duplicate prevention control information detecting element, 13 — The timing generation section, 14 — SS additional information generation section, 15 — SS additional information superposition section, 16 — The write-in section, 17 — The medium proper information read-out section by the side of record, 18 — Encryption section, 21 — The read-out section, 22 — The medium proper information read-out section by the side of playback, 23 — SS additional information detecting element, 24 — The timing generation section, 25 — The playback propriety distinction section, 26 — Regeneration section, 27 [— Information signal elimination section,] — The display information generating section, 28 — A LCD driver, 29 — 11

LCD, 31 32 [-- ROM, 203 / -- RAM, 204 / -- A card reader, 300 / -- IC card memory, 100 / -- Disk (record medium)
] -- The decryption section, 200 -- The system-control section, 201 -- The actuation key section, 202